



HALF BATH.



HEAD BATH.



SITTING BATH.



DOUCHE BATH



SWEATING.



GOING TO BATH AFTER SWEATING.

THE PHILOSOPHY
OF THE
WATER-CURE:
A DEVELOPMENT OF THE
TRUE PRINCIPLES
OF
HEALTH AND LONGEVITY.

BY JOHN BALBIRNIE, M. D.

ILLUSTRATED WITH THE CONFESSIONS AND OBSERVATIONS OF
SIR EDWARD LYTTON BULWER.

First American from the Second London Edition.

NEW-YORK:
WILSON AND COMPANY.
15 SPRUCE STREET.

1846.

N E W - Y O R K .

JOHN R. WINSER, STEREOYPER
138 Fulton-street.

NLM

TO
THE SUPPORTERS OF BATHS AND PARKS FOR THE PEOPLE ;
TO THE MEMBERS OF TEMPERANCE SOCIETIES ;
TO STUDENTS AT UNIVERSITIES ;
TO LITERARY AND PROFESSIONAL MEN ;
TO THE NERVOUS, THE DYSPEPTIC, THE GOUTY, THE
APOPLECTIC, AND THE CONSUMPTIVE ;
THIS VERY HUMBLE ATTEMPT TO UNFOLD THE MERITS
OF A SYSTEM OF MEDICAL PRACTICE,
THAT PROMISES TO EXTEND THE EMPIRE OF MAN
OVER DISEASE, INFINITELY BEYOND ALL FORMER TRIUMPHS
OF ART,
IS RESPECTFULLY INSCRIBED BY
THE AUTHOR.

P R E F A C E.

To the reflecting observer, the times we live in are pregnant with signs of momentous import. The whole world is in commotion—society is heaving to its centre—as if in the throes of some great regenerating change, personal, political, and religious. An impulse is being communicated to the human intellect, that will be far greater in its results than that of the Revival of Letters. A Reformation is in embryo, that will far exceed in depth, extent, and direction, that of the era of Luther. The material and the spiritual world exhibit the development of agencies, whose *ultimatum* no mortal ken can scan—agencies neglected in the slumber of ages, or rejected in the pride of sophisticated intellect, because considered too simple to produce mighty results. Primitive principles of truth, suppressed throughout the entire duration of empires and hierarchies, because uncongenial to dominant systems—are once more struggling into existence, and beginning to exert their native force. Light is being shed abroad ; and darkness, and what it hides, are disappearing before it. Men are awaking from their apathy about matters of general concern ; and, rejecting the authoritative dictation of prejudiced or interested partizans, are enquiring, for themselves, into the why, and wherefore, and whereto of things. Long-constituted, and long-venerated powers, civil and ecclesiastical, whose tenure of existence is held on popular *prestige*, as much as on public

utility—are crumbling before the assaults of modern innovation, or falling asunder by their own internal divisions. *Mere antiquity commands no reverence; and mere novelty conciliates no favor.* Mind is gaining the ascendant over matter—moral power over physical force. The *immunities* of the privileged class are more closely than ever associated with its *obligations*—the *rights* of property with its *duties*. Individual emolument is being postponed to public advantage. Even the names and symbols of *party*, erewhile so talismanic, begin to lose their power; and its ancient, distinctive tenets, whilom unyielding, are now forced to bend before the pressure from without. The *spirit* is taking the place of the *letter* in government, laws, and literature; and *both* are once more earnestly contended for in religion.

In such an eventful epoch as this, comes forth the WATER CURE, with its claims to public favor. It is a system in harmony with the spirit of the times; it supplies a want exactly suited to its exigencies. Let not the doubts of the incredulous, or the sneers of the unthinking, here assail us, in our opening. “**H**E THAT JUDGETH A MATTER BEFORE HE HEARETH IT, IS NOT WISE.” It is enough to forestall such hasty judgments, to say, that THE WATER-CURE IS A NECESSARY RESULT OF, AND APPENDAGE TO, THE DISCOVERIES OF THE IMMORTAL LIEBIG—a philosopher, in honoring whom, on his late visit, the country has honored itself. Calm discussion of the subject will prove, that not merely in the *fact*, but in the *explanation* of its curative results, DRUG-MEDICATION can no more cope with the WATER-TREATMENT, than pack-horses can compete with railways. The question narrows itself to this point; namely—it is acknowledged that it is not physic, or the physician, that cures; but that the functions of the living organism, the unshackled play of its physiological actions (*the vis medicatrix naturæ*), are the prime agents in the restoration, as in the conservation, of health. Water, in its varied modes of application, can be made to produce, *demonstratively*, every *salutary* physiological action, and every curative effort of the economy,

that the most successful administration of drugs is *said* to produce ; and that, too, in a manner, beyond all compare, more certainly, safely, promptly, and efficaciously.

WE now address a few considerations, more especially affecting the position, and deserving of the attention, of the Faculty.

It is the part of an impartial judge to weigh evidence of character, before uttering sentence of condemnation. The WATER-CURE pr  eminently deserves of its medical judges, unprejudiced examination,—a mind alike free from the fanaticism of its advocates, on the one hand, and the bigotry of its adversaries on the other ;—and needs for its discussion all that sound sense, patient temper, and good breeding, ever characteristic of the most distinguished members of the profession.

All medical practice is *empirical* in the true sense of the term ; and is only to be tested by Induction. In weighing the pretensions of the Water-Cure, the possibility of a fallacious decision cannot be admitted ; because there is both sufficiency of facts, and competency of witnesses.

Incredulity here displays either a lack of knowledge, or a defect of judgment. The Water-Cure is not a thing of yesterday ; nor confined in its operations to one remote, obscure, outlandish spot, frequented only by a few stray visitants ; nor is mysticism or man  uvre affected as to its modes and means. The patients are now of every class, and from every clime ; and come across us in every path of life. If such persons had been the dupes of false representations, it is reasonable to conclude, that they would long ago have warned the world of an imposture, and saved alike the pockets and the bodies of all whom their voices could reach. But where do we hear of any such testimonials *against* the system ?

The false cry of “danger” will not now avail. The same

"dangerous" results were prognosticated of the non-coercion treatment of the insane. To confess the truth, this is merely one of the many obstacles which PREJUDICE raises against INNOVATION—or SELF-INTEREST against PUBLIC CONVENIENCE. The characters of men and things are two often appreciated according to popular rumor ; and the best of them despised and rejected in their day, because the leaders of opinion, and then, the multitude, speak evil of them. Hence the hostility to Reformers—the jealous watching of their steps—the uncharitable misconstruction of their motives—often the savage thirst for their blood. Jesus Christ and his Apostles were considered "dangerous" characters, disaffected, seditious, enemies of government, and unworthy to live—and this, not merely by the "profanum vulgus," but by the professed fearers of God, the venerators of the Prophets, the public exemplars and expounders of religion ! Individuals of similar spirit and function—the most God-like of human kind—have had their hottest persecution from similar quarters, since. The Faculty of Paris at first denounced fermented bread as *poisonous* ! The same learned body refused permission to print the work that gave to Surgery the greatest practical improvement it ever received ; namely, that of Ambrose Parè, on the application of ligatures to arteries after operations.* The introduction of hackney-coaches was opposed by watermen !—the introduction of umbrellas was opposed by hackney coachmen ! To shrewd men of the world, who know better, this *philanthropic* crusade of certain of the profession against the "dangerous" water-treatment, seems very suspicious.

“ Timeo Danaos, et dona ferentes.”

If the faculty profess, as they do, to follow their vocation, pr  eminently, *pro bono publico*, can they consistently withhold, or would they wish to restrain, their fellow-men—we do not say from a trial of the efficiency of water relatively to

* They said, "What! trust a man's life to a thread!" and so they persecuted him, until his practice was nearly destroyed.

drugs, in simple cases, but—from the chances of recovery in cases where they confess medicine avails not? Why debar those, at least, whom the old tactics have failed to benefit, of the trial of a system whose efficacy is attested by the most conclusive evidence?* The profession is called upon to show magnanimity on the present occasion—to postpone their private interests to the public weal. In the end, they will not be losers. New fields for their talents will open up. Medicine, as a practical art, will never be superseded. The weapons of warfare will indeed be changed; but the aid and opinions of physicians will still be as necessary as ever. In the meantime—in the present transition stage from the old to the new discipline—difference of partizanship—difference of means in working out one common end, should not alienate professional men, as it has too often done—should not raise enmity between brethren.

The really sore part in the present case—"the head and front of the offending"—is, that a Silesian peasant and not a learned professor, is destined to revolutionize, at no distant day, the practice of physic, and with it, to a great extent, the habits of society. It is humbling to the pride of science to owe its discoveries to accident, and to receive its improvements from the illiterate. But real greatness of mind and character ever prompts its possessor to seek and accept information from the humblest, as well as the loftiest sources.

The history of medicine is but a series of revolutions. Practice that is now considered heterodox, was once most orthodox; and, upon its first assailants were evoked the wrath and persecution of the whole faculty. The immortal SYDEN-

* Fourteen physicians, it is known, visited Grafenberg in one year, and many left behind them their complaints, for which they had been treated in vain, for years, by the most eminent of their brethren! In like manner at Malvern, under the Water-Cure treatment of Dr. Wilson, ten Medical Practitioners became converts to the new system, and the majority of them are now practising it.

HAM quailed before a storm of this kind. Yet the innovations in question are hailed as an emancipation from inveterate and malignant error. THE PRESENT IS AN EPOCH OF LIKE CHANGE. There is the old unwillingness to abandon beaten paths—the same clinging to time-honored prejudices. Private interests are now, as before, at variance with public benefits; and the collision will always produce the same shock, so long as human nature remains the same. New truths must now encounter the same opposition and obloquy they ever did. Advantages that come recommended by this universal ordeal, possess at least some claims to notice; as, without it, their validity might be questioned.

The present deviation from general usage is an innovation in practice as great as any preceding; and a similar improvement in the results has followed the change. The best way, perhaps, is to leave it to time, to dispel the fallacies and falsehoods now so current against this, as against other innovations. If, however, the spirit of innovation had been checked, what would have been to-day the state of Mechanics, Mathematics, Astronomy, Geography, Geology Chemistry, and all our flourishing Arts and Sciences? Those persons have read history, and studied human nature, to very little profit, who think to silence TRUTH by outcry, or to arrest its progress by opposition. Hard names, and calumnious imputations, are very questionable weapons of literary warfare; and are only arms, like the clubs and brick-bats of the mob, which Despair takes up in fury, when sound argument, or a good cause fails.

THE WATER CURE IS FOUNDED ON A ROCK; and the winds and waves of persecution will in vain assail it.

*



In "Part II." we have endeavored to clear up the ill-understood Laws of the operation of cold, on the animal economy. Specific ideas on this subject were a great desideratum; inasmuch as in some deservedly popular guide books on health,

the most unfounded and contradictory counsels are given, with relation to the use of baths, and exposure to cold. THE PRINCIPLES OF THE WATER-PRACTICE IN DISEASE, AS DEDUCED FROM THIS INQUIRY, will be regarded as at least an humble attempt and contribution, towards rescuing the new treatment from the errors and empiricism of its unprofessional practitioners—towards reducing its scattered and discordant elements, into a compact and harmonious system—towards, in short, establishing the Water-Cure, on a safe and scientific basis. This part of the work, from its very nature, will admit of great future amplifications, as experience will accumulate facts to fill up the deficient, and to settle the undefined. It is in vain for prejudiced medical writers to attempt to depreciate a system whose resources are so precisely suited, and so extensively applicable, to the wants of a diseased organism. Such attempts are only to be compared to the erudite essays written many years ago, by the heads of Literature and Science, to prove that the project of lighting streets and houses with gas was *a chimera*; that to cross the Atlantic by steam *was impossible*; and that Sir Walter Scott *could not* be the author of the “Waverly Novels.”

All morbid conditions of the body are reducible to a few primary types. Contrary to this simplicity, is THE ENDLESS NOMENCLATURE OF DISEASE; and founded on this, THE MULTI-FORM DOGMAS AND RESOURCES OF PRACTICE—A FARRAGO OF FORMULÆ, AS EXHAUSTLESS AS IT IS UNMEANING AND INEFFICIENT. Hence the ART OF HEALING has ever been, hitherto, the most complicated, contradictory, and incomprehensible of all human knowledge—the furthest removed from any sound and consistent principles worthy of the name of Science. The WATER-CURE, however, solves these complications and difficulties; breaks the spell of mystery and mysticism; illuminates the obscure, reconciles the conflicting; and even reaches the (erewhile) unattainable. The treatment of disease, *now*, for the first time, in the varied epochs and fashions of Medicine, exhibits almost universal POWER, CLEARNESS, SIM-

P L I C I T Y , C E R T A I N T Y , B E A U T Y — attributes that assimilate it to the operations of the Divine Hand. The Wisdom and Goodness of the Creator are not more vindicated in the penalties inflicted on man, for the contravention of the laws of his being, than in the beneficent means of indemnity He has placed within reach of all, when His Will is comprehended, and His Designs fulfilled.

“Part IV.” will be found to condense an extensive body of practical information, about matters that are the constant theme of a patient’s thoughts and inquiries. It was our object, there, only to develope established principles. To have offered their *rationale*, would have required a volume as large as the present.

THE WATER CURE

An ardent spirit of inquiry—a keen sifting of old systems—with a wide publicity to new discoveries,—are peculiar features of the times we live in. Truth cannot *now* be scowled down by the frowns of authority, nor put out of countenance by the jeers of ridicule. Personal feelings and considerations, *now* less than ever, oppose the progress of scientific improvement, and the moral and physical amelioration of society. Appeals to the vague fears and prejudices of the Public, Veneration for Precedent, and Respect for the mere Sanctions of Time, or Custom, or Fashion, are found but shallow substitutes for sound reasoning. Calumny and Detraction are not now received as Logic; nor Personalities and Abuse, as Arguments. Such weapons are repudiated by a good cause, and fail to bolster up a bad one. The Zeal of Party only stirs up the angry passions of human nature; the Zeal of Science, on the contrary, nurtures the amenities of conduct, and reproves the asperities of controversy.

These reflections are suggested by the reception and progress of the WATER CURE. This great innovation on modern practice—at variance with established usages, and opposed to long dominant prejudices—neither suggested by the lights of science, nor imported from the seats of refinement—has, nevertheless, already happily emerged from the Ordeal of Ridicule, Misrepresentation, and Abuse, which it is the fate of all new remedies—if not of every boon of humanity—to encounter. The indifference that for a while induced neglect, and the prejudice that repelled investigation, have given place to a dispassionate inquiry into matters of fact, and to that moral greatness that stoops to confess and retract its error. Discussion has only confirmed the merits of the new treatment, and settled its pretensions on an impregnable basis. Its claims, extensively to diminish the sum of human suffer-

ing, have been substantiated ; and the result is, that it is now as widely diffusing its benefits, as are the wants of society it meets, and the defects of medical practice it supplies.

The Voice of Experience, and the Researches of the philosopher, alike unite to justify this popularity. A "great cloud of witnesses" has arisen up in its behalf, not only on the Continent of Europe, but in our own country—trophies of its power to cure, when all the usual resources of the Healing Art, in the most skilful hands, had failed. DECEPTION HAS NOT BEEN, AND COULD NOT BE, PRACTISED. THE NEW TREATMENT IS NOT CARRIED OUT IN A CORNER, BUT IN THE OPEN LIGHT OF DAY, AND CHALLENGING THE INVESTIGATION OF ALL MEN. The Darkness, Mysticism, and Manceuvre in which Quackery hides its head and enacts its deeds, have no part in it.

The derision thrown upon the external application and internal use of cold water as a remedial agent, could only originate in an utter ignorance of the true principles of physiology, and of the objects and *rationale* of a philosophic treatment of disease. The processes of the Water Cure, moreover, are reducible to a sounder scientific system ; and are more in accordance with the latest Discoveries regarding the Phenomena of Healthy and Diseased actions, than the uncertain, contradictory, and random practice of physic. If the Doctrines of the Schools, therefore, are to be the Guides of Practice, the Water Cure, as being in stricter conformity with Physiology and Pathology, has greater claims to the favor of the Public and the confidence of the Physician.

The Professional Opposition to the new treatment is gratuitous—alike without grace, and without reason. The same cold-water applications that pretend to shock as dangerous innovations, are but the revival of obsolete practices once in vogue in our own country, in Germany, and in the south of Europe ; and are but an enforcement of the recommendations of modern chemistry. The sanguine predictions of Dr. Currie and his coadjutors are now being realized. The practice of the professional censurers of Priessnitz, and his professional followers, only differs in *degree*, not in *kind*.

The Dangers of Treatment—the Risks arising from Defects of Judgment—clearly preponderate on the side of the Old Practice.

In Drug-medication, errors of diagnosis are often fatal ; in the Water Cure, they are always innocent. In the treatment by medicine, *present* disease is often removed by sowing the seeds of *future* malady : *temporary* relief is often bought at the

expense of permanent inconvenience ; *healthy* action is not unusually restored to one organ by taking it away from another. These results cannot occur in the Water Cure. Drugs attack the general constitution through diseased localities ; the Water Cure attacks diseased localities through the general constitution. In the one case, the organ to be attacked is left to Nature ; in the other, it is selected by Art. In the Old Treatment, the *wrong* organ is sometimes chosen for attack, and the *fons malorum* exasperated ; in the New Treatment, the Wants and Resources of the Constitution call forth the Efforts of Nature in the *right* direction, and limit the extent of her operations. In Drug-medication, the result of unsuccessful practice is worse than no treatment ; for *functional* disturbance is often aggravated into *organic* disease ; in the Water Treatment, where a cure is not accomplished, the disease is not exasperated, but always mitigated. The Water Cure is always consistent with its own principles ; the Drug-medication often wants principles altogether, or runs diametrically counter to them. The one has *many* remedies, *all* of them uncertain ; the other boasts of but *one*, and that Simple and Efficacious ; the *mode* and *dose* of the remedy determining the *kind* of action. The Administration of Medicine is guided by the uncertain Rules of Art ; the Practice of the Water Cure is a close Imitation of Nature. In the Drug treatment, the remedy is abhorred ; in the Water Cure, it is enjoyed : the first chill and shock of the baths being followed by the glow and reaction of invigorated vitality.

The imperfections, therefore, of the old system give room for the improvements of the new, and justify the preference of the more efficient remedy.

The non-accordance of the Water Cure with the received therapeutical canons of the Schools, is no valid criterion by which to test the merits of the new system. The medical treatment of diseases, in fact, is overlaid with fallacies. What between the proverbial errors of diagnosis—the mistakes of morbid causation—and the temptation to be misled by hasty conclusions ;—what between the almost universal adulteration of drugs, or the spoiling of them by accidents, or errors of chemical manipulation ;—what between the disagreement as to their doses, and the uncertainty as to their operation ;—what between their modified action as affected by age, constitution, temperament, habits, diet, season, climate, &c.—there is no certainty of prescription—no accurate calculation of results—no exact appreciation of cause and effect. Wherein,

for example, have the triumphs of German Spas, and our own mineral waters, been most trumpeted forth? In Dyspeptic, Nervous, and Hypochondriacal disorders—complaints which drugs can never cure, and which are greatly influenced by adventitious causes; as mental emotions—social circumstances—the anxieties of business—confined air—late hours—luxurious dinners—and bodily inactivity. But at a Spa, business is laid aside—the patient lives by rule—keeps early hours—continues most of the day in the open air. The result is, the speedy re-establishment of health. Medicine and medicated water gets the credit; while, in fact, the cure is brought about, not *in consequence*, but *in spite*, of the treatment; and the patient is really benefited, to the extent that he has been unconsciously put under the discipline of the Water Cure. And, inasmuch as the full processes have not been carried out, the patient, in a majority of cases, is but only partially “patched up.”

Clean cold water is the only physical agent that exercises the most certain, safe, and salutary control over all the functions of the living organism. It most effectually and speedily quells inflammation, subdues fever, opens the obstructed pores, maintains perspiration, and soothes morbid sensibility. Pure water, pure air, and plain food, with water (simple or saline) variously applied to the skin, in conjunction with active bodily exercise, are the great sources of acquired health, and means of throwing off disease. For it is neither physic, nor the physician, that heals; neither drugs nor cold water can remove the proximate causes—the material conditions—of disease. The Inherent Conservative Powers of the Living Organism are the only agents in restoration. The aim of all scientific treatment must be to give the fullest scope and highest activity to all the Vital or Vegetative Processes—to second the Efforts of Nature to throw off Diseased Action—to counteract Disturbing Agents, or to eject them from the economy.

Animal life, according to the incomparable researches of the first of living philosophers, Liebig,* consists in the transformations effected by the various combinations of the elements of food and oxygen. The processes of the Water Cure bring about more efficiently than any other means these favorable

* The immortal work of this great author, “Chemistry, in its applications to Physiology and Pathology,” is calculated to alter entirely the practice of Medicine.

conditions. The appetite is speedily improved ; the exercise is increased proportionably ; the elements of the transformations in question are afforded in greater quantity. The result is AN EXALTATION OF VITALITY, whereby the powers of the system have full play for the work of altering morbid conditions—breaking up obstructions—restoring secretions—and eliminating diseased excretions from the system ;—thus producing more rapid transformations, renewing the blood, and compacting the solids by healthier depositions of new material.

The diseases wherein the Water Cure achieves its greatest triumphs, have been hitherto the opprobrium of medicine and of its professors. These are the protean class of Nervous Disorders ; the so-called Stomach and Bilious Complaints (organs more sinned against, than sinning;) the host of Anomalous and Nondescript Ailments, the results of the excessive tear and wear of Body and Mind produced by the competitions of business, and the collisions of modern society ; Chronic Gout and Rheumatism ; Scrofula, Syphilis, and Mercurial diseases ; the Causes and Physical Conditions of Apoplexy, Palsy, General Vitiated Habit, &c.

But the power claimed and possessed by the new treatment of EXALTING THE ENERGIES OF THE LIVING ORGANISM is not to be applied indiscriminately, immoderately, or in a routine manner. The age, temperament, and constitution of the patient—the season of the year—climate—the nature, seat, and source of the complaint—are the guides of the mode of treatment and the measure of its extent. It is also to be distinctly remembered, that the Water Cure is chiefly applicable to functional disorders, AND NOT TO ORGANIC DISEASE. And it is a consolatory fact to know that in cases of Confirmed Indigestion, Bilious, and Liver Complaints, Nervousness, and Hypochondriasis, organic disease is of comparatively rare occurrence.

The alleged danger of the *Crisis* is a mere chimera—a phantom conjured up to terrify the weak, or to stagger the strong. Properly to apply, however, the processes of the Water Cure—to ensure at once the safety of the patient, and the success of the remedy—it must be in the hands of a practical physician, intimately versed in the sound and morbid structure of man, and possessing habits of careful observation of disease, accurate diagnosis, and profound reflection. The amount and kind of treatment necessary in a given case, is determined by the existing bodily condition, as deduced from a

strict interrogation of all the functions, and a faithful investigation of the previous history of the disease. In this way alone can the precise nature, seat and extent of the internal derangement be known, and the amount of constitutional stamina, wherewith to throw off morbid action, be determined.

The *condition* of treatment as regards the patient himself, is to withdraw the organism as much as possible from all sources of unnatural or excessive stimulations. For this reason, repose of the passions is necessary—the turmoil of business, and the excitements of study, are to be avoided—all dietary stimulants, alcohol and fermented liquors are eschewed.

The Water Cure, when adopted by the profession generally, will be the death-blow to quacks and quackery. The concocitors of the various humbugs, to be expected in such a country as this, have now seen their best days; and it is to be expected that a more honest set will succeed them. The trading speculators in the Water Cure, and their doctor-servants, real or pretended, are not excluded from this category.

So far as great names give a sanction to a system, the Water Cure is not without some of the most eminent in science, and the most distinguished in practice. Not to mention a host of physicians and professors on the Continent, with the illustrious Liebig at their head, it may be enough to cite some names of well-deserved note in our country—Sir Charles Scudamore, Drs. Wilson, Gully, Johnson, Adair, Crawford, Hume, Weatherhead, Freeman, Smethurst, Heathcote, Mr. Herbert Mayo, Mr. Courtney, Mr. Abdy, and many others. The French, Prussian, and Austrian Governments have now given their public approval to the system: the reports of their respective commissions sent to Grafenberg to investigate its merits, having given a favorable verdict.

A remedy that has proved so potent in untrained and unskilled hands, affords a legitimate prospect of much greater success when wielded by men of cultivated minds, and devoted to the practice of the Healing Art.

PART I.

THEORY OF ANIMAL LIFE: PRINCIPLES OF PATHOLOGY,
AND RATIONALE OF THE WATER CURE.

PHILOSOPHICAL PRINCIPLES OF HEALTH AND DISEASE.

APHORISM I.

ANIMAL LIFE, in its ultimate analysis, is nothing more or less than a continued *transformation* of matter—an uninterrupted decay and restoration of the body—the ceaseless operations of two opposing processes of supply and waste, of building up and taking down, of depositing new materials and removing old. This perpetual change of matter is the Primary Law of Life. It is this which keeps all the tissues and structures of the body in a constant state of repair—ever renewing the materials of the organization, and counteracting its wear and tear. Dead and inorganic matter is converted into living and organized; food is changed into blood, and blood becomes solid tissue. This solid fabric having served its purpose in the economy, becomes in its turn and piecemeal, dead and effete; is decomposed into its organic elements, and removed from the system in the shape of excretions. These worn-out materials, conveyed away in the returning circuit of the blood, impart to it a black color and poisonous properties. The lungs, kidneys, liver, and skin, serve as emunctories, or *drains*, by which these noxious compounds are evacuated from the system. In the same backward current of the blood, the new materials of growth, repair, or strength, are poured in by their carriers, the lacteal system; and in the lungs, a fresh supply of oxygen is momentarily received. The blood is thus continually recruited, renovated, purified, and made fit for the purposes of life.

These two grand processes of supply and waste comprise the functions of Digestion, Absorption, Circulation, Assimilation, Respiration, and Excretion.

APHORISM II.

“*The blood is the life.*” Such is the dictum of Scripture: such is the deduction of Science. The blood is the life, inas-

much as it contains in itself the two grand elements by which all the changes in question are effected—by which the functions of life are maintained ; namely, 1, the nutriment—the new materials for repairing the waste of the living structures ; and 2, the oxygen necessary to combine with the wasted materials, and to remove them out of the system.

Life, in fact, and without a metaphor, is a flame : the animal body is a furnace. The food is the fuel ; the carbon thus supplied, with the oxygen absorbed by respiration, are the supporters of combustion, and the source of animal heat.

There is a precise analogy, if not identity, between the combustion of oxygen in the body, and out of the body. The body is consumed, burned, wasted away, *transformed* by oxygen, precisely as an ignited candle, coal, or faggot. The oxygen in both cases combines with their carbon and hydrogen : in both cases, the same products are given out—namely, heat, carbonic acid, and the vapour of water. The oxygen of the air enters the circulation by the lungs, and is carried by the blood-globules to every part of the structure, uniting with its wasted materials, namely, hydrogen and carbon. The carbon is converted into carbonic acid, the hydrogen into the vapour of water or breath. These are emitted as the *smoke* of the living furnace. The unassimilated nitrogen of the food, together with the unburned carbon and other matters, constitute the *ashes* of the furnace, and fall through its *gratings*—are removed by the appropriate outlets.

Such is animal life : such are the means by which its functions are maintained : such are the only Conservative Powers of the system—the true *Vis Medicatrix Naturæ*—an embodied but invisible entity.

APHORISM III.

The proper performance and balance of the above functions—the maintenance of the due *relative* proportion between supply and waste, according as the body is adolescent, adult, or aged, constitutes **HEALTH**. It is the equilibrium of the **Conservative** and **Destructive** powers—of the *vital* power or affinity, on the one hand, which is perpetually depositing in the solid organism, the new materials of growth and strength—the nutritious elements of the blood ; and of the destructive power of oxygen, on the other hand—its *chemical* affinity for the same elements of the tissues, which tend to break them down, and to carry them out of the system.

There is an alternate predominance of the vital and chemical

affinities ; the *vital* affinity tending to retain the elements of the body, and the *chemical* affinity to decompose and remove them. When the vital affinity predominates, the elements are retained in the organism : when the vital affinity is weakened the affinity of the elements for oxygen prevails, and decomposition is the result.

These transformations are effected under the influence of the nerves, and the Vital Principle. These agents modify the *mere* chemical combinations of the living solids and fluids.

APHORISM IV.

DISEASE consists in the undue action of the one, or the other, of the two grand functions that are the basis of animal life—the want of balance between waste and supply, either in a part, or in the whole, of the organism ;—a defect, excess, or error in the quantity or quality of the transformations in question.

APHORISM V.

The cause of DEATH, in all chronic diseases; is the want of the substance, whose function is to support respiration. When the organs have lost the power of producing those substances —when they have lost the power of transforming food into that shape, in which it may, by entering into combination with the oxygen of the air, protect the system, then the substance of the organs themselves, fat, muscles, nerves, brain, membranes, are unavoidably consumed. The respiratory process is the cause of death. The flame is extinguished, because the fuel is exhausted : the oxygen of the air has consumed it. Hence, the influence of the *Hunger-cure*—a scanty diet—in reducing morbid growths, or removing from the body substances incapable of assimilation.

APHORISM VI.

The quantity of oxygen taken into the system, is the measure of the quantity of food necessary for its wants. This quantity of oxygen is determined by the extent of exercise taken—the number of respirations in a given time (the lungs being sound)—the temperature of the atmosphere—and the amount of heat given off to the surrounding medium by cold water, cold air, or scanty clothing.

A relative excess of food produces an unhealthy deposit of fat, or the excess finds an outlet through the emunctories of the system. A relative excess of oxygen over the carbon supplied

by the food, produces waste of the living tissues—in short, diseases of repletion or exhaustion respectively are the result. In other words, an excess of food is incompatible with deficiency of inspired oxygen, that is, deficiency of exercise : an excess of oxygen, that is, of exercise, on the other hand, is incompatible with deficiency of food.

APHORISM VII.

The capacity of the lungs to contain blood, and of blood to contain oxygen, are determinate not variable quantities. Hence the necessity of a *simultaneous* quickening of the Circulation and Respiration, to increase the amount of absorbed oxygen. This can only be done by bodily exercise.

APHORISM VIII.

The animal body parts with its heat to surrounding objects by the same laws as any other heated mass: nevertheless it always retains its uniform standard heat, however low the temperature it is placed in. From this undisputed premise, the generation of animal heat must therefore be rapid in proportion to its abstraction by cold—to the lowering of the temperature, whether momentary or permanent, of a part, or of the whole of the body. Repeated cooling of the whole or of parts of the body, necessitates a rapid generation of heat: this necessitates a rapid transformation of the tissues; this calls forth an increased energy of the Vital Processes, of the *Vis Medicatrix Naturæ*.

Thus are brought about, the conditions most favorable to the throwing off of diseased action; namely, an increased energy of the living functions and organism; an augmented rapidity of transformations—of vital changes of matter within the system; the removal of old materials and the deposition of new: an increased waste, demanding and receiving an increased supply.

APHORISM IX.

The effect of muscular exercise, and of the abstraction of heat, in accelerating the change of matter, is accounted for by their expending proportionably the vital power. This expenditure of vital power renders the vital affinities weaker than the chemical, and hence determines the change of matter—a breaking down or decomposition of the living tissue—a combination of the oxygen with its elements—the substitution of

healthy materials for unhealthy deposit—and the elimination of the latter out of the system.

APHORISM X.

The increased transformations of matter thus brought about—the additional heat thus generated—necessitates increased supplies of food, of fuel—the elements of the transformations, and the materials of heat. In proportion to the cold endured, to the exercise taken, the amount of inspired oxygen increases, and with it the necessity for food rich in carbon and hydrogen. By clothing and fires, the loss of heat by cooling diminishes; and the amount of heat to be supplied by food decreases proportionably. Hence, in such circumstances, the appetite is less urgent.

Drinking considerable quantities of cold water, necessitates increased exercise, to supply by increased respirations, the oxygen necessary to restore the heat abstracted. Hence an increase of appetite to keep pace with the increased waste effected. If the food is supplied according to the demand thus created, there is a correspondingly augmented generation of heat and development of strength. Hence water-treated patients soon throw off with impunity flannel, and abjure muffling; and in point of bodily activity are fit for the feats of the hardy Highlander.

APHORISM XI.

The Organic or Ganglial Nervous System alone supplies the blood-vessels and the secreting organs and surfaces, is intimately connected with life, controls the chemical changes of the circulating fluid, regulates the functional activity of all the viscera, and plays an equally important part in the causation and in the removal of morbid phenomena. Most, if not all, morbid agents which attack the frame, and which produce states of vital depression, primarily exert their action on this system. The impression thus made is not confined to this part of the organism, but extends secondarily to those parts and structures that are dependent upon the ganglial nerves for the regular performance of their functions. Accordingly we observe the Circulating, the Digestive, and the Assimilative systems immediately enfeebled by causes which operate through the nerves of organic life. The extent and intensity of the *cause* determines the extent and intensity of the *effect*, relatively to the energy of the system at the time. Depression, disturbance, or arrest of the vital manifestations of the prime organs of the Head, Chest, or Abdomen, is the result.

APHORISM XII.

Sympathy, medically speaking, is the consequence of the mutual relation and dependence of action between the various organs of the body. This copartnership of the weal and woe of the economy depends upon the free intertwining and communication of the ramifications of the organic nervous system with each other, and with those of the cerebro-spinal system. When one organ or general system is diseased, or even simply excited, the functions of other organs with which it is more or less intimately related by means of the ganglial nerves, undergo a relative degree of change.

APHORISM XIII.

Derangement or impairment of Nervous Power is the starting point of diseased action—the first link in the chain of morbid causation.

APHORISM XIV.

The grand functions of supply and waste, of decomposition and recombination, are carried on by the extreme minute branches of the blood-vessels called capillaries. *Derangement of the Capillary system is the second link in the chain of diseased action.* The capillaries depend for their tone (contractility) on the due supply of nervous energy distributed to them by the ultimate filaments of the organic nerves; when this nervous energy is impaired in any way or degree, their contractile power is diminished, they admit a larger current of blood with a slower motion. This undue distension, when existing in the veins, is called *congestion*; when in the arteries, *inflammation*. The primary and immediate consequence of this morbid state is *functional disturbance*; the secondary and remote consequence is *organic alteration*. In either case, the equilibrium between supply and waste is lost; secretions become altered, checked, or profuse; nutrition is diminished or increased in quantity, or deteriorated in quality—there is unhealthy emaciation or plethora, or morbid growth, tumors of various kinds, are the result; bony matter is deposited in wrong places; vapory exhalations are diminished to dryness or increased to fluid; one set of nerves is morbidly sensible, another impaired in energy, and both alike tending to derange the functions they minister to.

APHORISM XV.

The distinctions of Acute and Chronic disease are the arbi-

trary divisions of science, but do not imply any essential difference in the ultimate nature of morbid action; nor do they materially alter the indications of cure, or the principles of treatment. The subsidence, more or less, of the general constitutional or sympathetic suffering, which their first attack, or reiterated exacerbations, produce, chiefly distinguishes Chronic from Acute diseases. The persistence, however, of unsubdued morbid action tends to destruction of the tissue or organic disease. What is termed the *proximate cause* of disease is in truth its *pathological condition*, or actual state of disease induced by a variety of causes. These early changes of structure, or primary morbid conditions, give rise to different forms of ulterior change of structure, constituting specific diseases.

APHORISM XVI.

The effort of a regenerating change in the constitution—the struggle of the vital conservative forces with diseased action—and the token of their triumph—consists, in a multitude of cases, in a return of suppressed excretions, in the setting up of a powerful drain from the bowels, kidneys, skin, or air-tubes, or in the establishment of eruptions on the skin. This is called a CRISIS.

APHORISM XVII.

Acute disease is often a sort of spontaneous crisis—an effort of self-protection on the part of the economy—a struggle of the conservative powers to explode and throw off the accumulating materials of mischief. This effort, accomplished imperfectly through defect of constitutional vigor, the improper interference of art, or the want of its necessary aids, lays the foundation of severe chronic maladies.

APHORISM XVIII.

It is the chronic state of disease that unassisted nature chiefly fails to cure, and wherein the means of art are applied with the best effect. The triumph here is least disputed, because the difficulty of conquest is most admitted.

APHORISM XIX.

The *indications* or *intentions* of treatment in all diseases without exception, and the therapeutical action that is required of all remedial agents, is, according to the circumstances of the case, either to depress excessive action, or to stimulate deficient

action. In the successful fulfilment of either of these objects exclusively, or both conjointly or alternately, consists the whole art and science of Healing.

APHORISM XX.

As all the vital functions are performed *immediately* by the organic nerves, and *mediately* through the capillary vessels; and as derangement of these systems are the proximate causes, or material conditions of diseased action; to rectify this derangement, to restore their lost energy to the nerves and to the capillaries is the final end and object of all remedial agents. All drugs and medical therapeutical resources whatever, infinite as they are in number and modification, are reducible in their ultimate action to the simple and unique object of increasing the tone of the nerves and capillaries. This result remedies produce, by their action either as *stimulants* or *sedatives*.

APHORISM XXI.

All the complicated divisions and sub-divisions of the Pharmacopœia resolve themselves finally into nothing more or less than these two grand classes of agents, namely, **STIMULANTS** and **SEDATIVES** (if indeed the *primary* action of all remedies is not stimulant, and the secondary result sedative.) The effect of stimulants is directly to call forth, in diversified ways, a temporary or permanent increase of nervous energy. The effect of sedatives, as bleeding, derivation, purgatives, emetics, diuretics, diaphoretics, and evacuants of all kinds—with the more or less prolonged application of cold—is to diminish capillary tension, to equalize the general circulation, and to remove or diminish that general excitement of the heart and arteries, by the continuance of which local inflammation may be produced or prolonged.

APHORISM XXII.

It is the inefficacy of drugs fully to accomplish these ends, that increases their number, and necessitates their change. If any single drug or remedy could be produced, at once easy of access and simple of control, and which should safely and efficiently bring about these two grand objects of stimulation and sedation, either singly or combined, according to the necessities of the case—then a valid substitute would be found to supersede the exhaustless and oft poisonous compounds of the Pharmacopœia. Beyond all controversy pure cold water makes

good its claims in this respect. According to the *mode* and *dose* of administration, its action is preëminently sedative or stimulant. No single medicine or combination of medicines can compete with it either in power, certainty, or safety of action. In the attributes of *power* and *simplicity* it may almost claim an Agency Divine. For it is not by complicated machinery or means, but by the simplest natural agents and laws, that the Supreme Being achieves the mightiest results of his wonder-working hand.

APHORISM XXIII.

The curability of disease depends upon the latent stamina or strength of constitution, relatively to the nature and extent of the functional disturbance or organic alteration ; taking it as an indispensable condition that the original causes of the malady cease to operate ; for until the primary disturbing causes are removed, no curative result can take place.

APHORISM XXIV.

An accurate knowledge of the physiological action of cold water in its varied applications—with the ability skilfully to modify these applications according to individual peculiarities of constitution and disease—a practical acquaintance with Pathology, in addition to experience in the scientific modes of examination and diagnosis—with that intuitive power of medical observation, which is the prerogative of genius, and which learning fails to confer—these are the prime requisites necessary to constitute the safe and scientific treatment of disease by Cold Water.

APHORISM XXV.

The largest and ablest medical practice has proved that free air, plain diet, graduated exercise, early hours, and simple habits are the means in addition to cold water internally and externally, which best maintain the body in a state of health, which most exalt the energies of the nervous system, and most aid the natural Conservative Powers, the *Vis Medicatrix Naturæ*, in throwing off chronic disease.

APHORISM XXVI.

The relative success of treatment will depend, *cæteris paribus*, on the natural advantages of locality, and the extent to which all the hygienic influences requisite are most systematically enforced. Defects in any of the requisite conditions will pro-

portionably mar the success of the measures. The power of genius, and the skilful employment of the subsidiary aids, may to a certain extent compensate the disadvantages of locality ; as a skilful artisan with inferior tools can rival the productions of the less skilful with better implements.

APHORISM XXVII.

The danger of treatment by water as by drugs, depends in its administration by incompetent persons, who have never studied the actions of the living organism in health and disease, and who are equally unacquainted with the varied physiological action of water according to the manner of its application.

APHORISM XXVIII.

The refinements of high civilization are the most prolific sources of disease. The excitement and oppression produced by sophisticated meats and drinks—the universal partiality for drug-relief—the studious and excessive use of artificial precautions against the “intemperies” of climate—the thousand nameless causes of envy, jealousy, mortification, and disappointments in the easy classes, with the mental tumults, cares, distractions, and bodily harass of the struggling classes, exhaust, by little and little, the energy of the nervous system, induce a whole host of nondescript disorders of function, and diminish the power of organic reaction when stricken down by acute maladies ; in every way making countless multitudes fall victims to disease long before their sun has measured half its heaven.

APHORISM XXIX.

The “*mens sana in corpore sano*,” in its fullest sense, is the true “*summum bonum*”—the acme of mortal felicity. A life led agreeably to nature ;—the due sway and exercise of the intellect ;—the cultivation of pure affections ;—the control of the imagination, and the discipline of the passions ;—magnanimity in misfortune, and moderation in prosperity ;—a mind regulated by the precepts and promises of Revealed Truth ; steering clear of the extremes of infidelity, fanaticism, and superstition ; more anxious to obey commands than to entertain dogmas ;—hopes dwelling on the bright scenes of futurity, and fears only deterring from acts that would blast them ;—in such principles and such conduct are found the only elements of content and peace on earth, and the surest means of maintaining health and prolonging life.

PART II.

THE PHYSIOLOGICAL ACTION OF WATER OF VARIOUS TEMPERATURES VARIOUSLY APPLIED : THERAPEUTICAL CANONS DEDUCED THEREFROM.

THE PHYSIOLOGICAL ACTION AND CURATIVE EFFECTS OF WATER, OF VARIOUS TEMPERATURES, VARIOUSLY APPLIED.

THE department of Therapeutics is the reproach of Medicine : its principles are too vague and inexact to merit the name of a Science ; and its rules too equivocal and contradictory to be valid guides as an Art. That system of philosophizing, which, since the time of Bacon, has done so much to advance human knowledge, has hardly ever, or but inadequately, been brought to bear on this branch of Physic. We will not stop to inquire into the cause of this ; whether it be the innate difficulty of the subject itself ; the want of zeal in scientific men, or the want of its direction towards this kind of research ; or the too exclusive addiction of the leading spirits of the profession, for the last fifty years, to the pursuits of pure Physiology, Chemistry, or Pathology. Suffice it to say that the only foundation hitherto of Therapeutics has been *opinion*—the opinions of practitioners styled “ Medical Authorities”—opinions not deduced from carefully-conducted experiments, on a sufficiently large scale, and by sufficiently accurate observers, to establish legitimate generalizations—but opinions formed from partial prepossessions or empirical practice. The illustrious Bichât, had he lived, would have carried the exploring torch of genius into these dark recesses ; evoking from the formless and the void, shapes of beauty and solidity ; illuminating the obscure ; calling order out of confusion ; embodying the invisible ; fixing the fugacious ; settling the undefined ; and establishing a solid groundwork of principles, where there had been only the “ airy nothings ” of opinion. This creative labor can now afford to lie in abeyance ; if it be not rendered henceforth a work of supererogation.

As regards the great bulk of the medicaments in daily use, and as respects even the simplest of them, we know nothing very accurate as to their really useful principles, the pathological states that indicate them, their doses, their modes of action, and

effects, general or especial, primary or consecutive, local or constitutional ; not even in any one given disease.

If this be the case in regard to any single remedy in any single disease, how much more difficult must be the inquiry, when the question is of some three or four or six contradictory ingredients combined into one heterogeneous melange, and of their operation in a multitude of diseases ? How far does not one drug or combination destroy the effect of another, if it does not alter its properties, so as to form a *tertium quid* widely different in its effects from those intended, if it be not absolutely pernicious ? So little has yet been determined in this domain of Medicine : and so wide a field yet remains to be explored ! Science has advanced in all other points : here it has been stationary ; remaining, save in a small number of cases, almost in the primeval uncertainty in which the Father of Physic himself left it.

It is only a dictate of common sense, that, to prescribe a remedy with confidence, and to employ it with skill and success, its action must first be sure and well-determined. The enlightened treatment of diseases must be founded not only on sound views of Pathology, directed by accurate powers of observation, and habits of profound reflection, but on an intimate knowledge, or at least a satisfactory theory, of the *modus operandi* of the means we employ to combat it. Otherwise we fight an enemy in the dark ; we deal our blows indiscriminately or bootlessly— injuring what we should protect—repelling where we wish to conciliate—and irritating where we intend to soothe : we thus confess ourselves, indeed, the vain practitioners of a *conjectural art* ; if we are not in too many instances but licensed manslayers—the not guiltless administrators of a public bane. What is blind Empiricism if it be not the employment of remedies whose action is unknown or uncertain against diseases whose real nature is equally obscure ? But the scientific practitioner of the Water Cure repels this insinuation on the justest grounds. He combats diseases, whose material conditions are among the best ascertained facts of science, with a remedy whose action he can most accurately appreciate, seconded by those hygeienic influences whose effects are known and certain. This is the only part of Therapeutics which deserves the name of science—the only part that can be administered without occasional qualms of conscience.

If these be sound abstract principles, which we have merely hinted at, not fully developed, they go to contract within exceedingly narrow limits the lists of the *Materia Medica*, and to re-

duce the legitimate and really available weapons of medical warfare to a very few simple instruments—but those of a keen edge, and “sheer-steel” quality; tried in their temper; undisputed in their virtues; easy to be wielded; alike impossible to be alloyed or to be exhausted.

Everywhere within reach, and presented by nature in the greatest purity and profusion, COLD WATER was probably the first remedy which unsophisticated man opposed to the injuries and ailments to which his physical frame was liable. To wash his wounds in the limpid stream; to allay the pain and to abate the heat of bruises and inflammations by immersion in its cold medium, would be the dictate of the earliest experience, and the first essay in the art of healing; for ages, perhaps, his only resource. The progress of civilization doubtless led to its disuse; because it is in the nature of refinement and luxury to engender repugnance to what is simple and natural; and in proportion as the progress of Science and the extension of Commerce opened up the riches of the three kingdoms of nature to eke out the resources of Medicine, and to create artificial wants, simple water fell into discredit. Hence, probably, those who retained the knowledge of its virtues, were obliged, by a very ancient *ruse*, to have recourse to the powerful aid of Superstition, to recommend what without it would neither have inspired confidence nor overcome opposition. As Numa, by exacting obedience to the benign laws and institutions of the goddess Egeria, swayed by art, an army and a senate whom he could not have governed by force!

But if cold water be a therapeutical agent so active, so salutary, so extensively applicable, and so easily manageable, as is alleged, then it becomes an inquiry of the highest practical importance to determine accurately its *doses* of administration, its *modes* of action, and the conditions of the system which demand or forbid its use. For a remedy that, if properly employed, is powerful to benefit, must, if mal-administered, be equally powerful to injure. In the treatment of multiform diseases by so simple and unique an agent as water, such fixed principles of practice must be established as can alone guide to a judicious selection of cases, and apportionment of processes. In this way only, will the means of art not be defamed, nor the confidence of man be misplaced. Hazardous, unreflecting, and empirical practice has already done much to discredit a good cause, and to put weapons

of offence at least into the hands of enemies who are neither backward nor unskilful to wield them. Like those of every other remedy, the virtues which water unquestionably possesses, depend on its being used *in the proper way; in the proper case; and at the proper time*. But to reject untried and unexamined this remedy, as dangerous, or at best unnecessary or uncertain, as many do, displays either a deplorable ignorance, or an unwarrantable scepticism. It could only be the faulty administration of Cold Water—erroneous views of the laws of its operation, and of the organism to which it is applied—which has driven it from the pale of orthodox practice, except in a few better skilled hands.

Before being able to establish sound therapeutical principles for the safe and scientific employment of water in the treatment of diseases, its physiological and pathological effects must first be ascertained,—the laws of the operation of cold on the living organism *attempted*, at least, to be deduced; and those morbid conditions of the body then determined which indicate or contraindicate its various aid. This knowledge can alone enable us to employ with intelligence and success the varied powers of water, to appreciate its diversified grades of action, and to multiply our curative resources, in knowing how to fulfil with one unique agent a multitude of indications.

1. *Physiological and pathological effects of the Cold Bath.*—In the outset of this inquiry it is necessary to premise, that *hot* and *cold* are merely relative terms. Individual susceptibility or sensation is the only true physiological criterion of hot or cold. The gradations of the thermometer are false guides. The distinctions of *cold, cool, tepid, warm, hot*, as applied to baths, afford no accurate data for the calculation of their effects: what is cold for one person is tepid for another, or for the same person under altered circumstances of bodily temperature or temperament: what is hot for one is only tepid for another.

We now enquire into the effects of water at that temperature that produces the absolute sensation of *cold*, or what is usually understood by *shock*. The sudden application of this degree of cold to the surface of the body determines an instantaneous change—a vivid impression on the nervous centres: probably the most powerful and momentarily-perturbative physical sensation that can be experienced; superficial heat is abstracted; the capillary vessels, glandular orifices, and minute arteries and veins of the surface are constricted; exhalation is suspended. If the immersion be but momentary, the blood is not driven into the interior organs, and no accumulation or congestion takes

place : the *constriction* of the superficial vessels is shared by those deeper-seated. But if the bath be prolonged for a few minutes the blood is repelled from the surface, and accumulates in the larger vessels of the interior ; the skin shrinks and becomes pale. The results of these changes effected in the system are a keen sensation of cold, shivering, trembling of the limbs ; uneasy weight of chest ; difficult, incomplete, and gasping respiration ; the pulse is diminished in frequency and force ; and the animal temperature is lowered by a few degrees. Up to this point all the organic functions are temporarily depressed ; the duration and intensity of this depression are in relation to the severity of the cold and prolongation of the contact, the power of generating animal heat, the constitution, predisposition, temperament, and habits of the individual.

This first series of phenomena is now succeeded by those of *Reaction* ; the shock and unpleasant sensation subside by degrees, and give place to others of an agreeable nature—to a general glow of heat which pervades the whole frame ; the blood returns to the surface ; the skin reddens and dilates ; the circulation is more energetic ; respiration is easy ; the animal temperature elevated ; the exhalation free ; increased nervous power is elaborated ; every organic tissue shares the impression ; the entire system becomes preternaturally excited ; all the functions are exalted ; the whole body is buoyant with recruited energies ; and the mind and spirits partake of the general exhilaration. This energetic reaction takes place in the water, only in the case of the more vigorous subjects, and when muscular exercise is used ; in the feebler it takes place only after a very transitory contact. In all cases, if the immersion be unduly prolonged, the feeling of warmth and vigor more slowly or rapidly decreases ; chattering of the teeth, convulsion, trembling, numbness of the extremities, languor, and exhaustion ensue ; secretion is suspended ; the pulse flags ; the features sharpen ; the eyes sink ; the nose and cheek-bones point ; the fingers and toes become bloodless and shrunk ; painful constriction of the head and chest occur ; the senses fail ; the mind is stupified ; delirium or convulsions ensue ; the limbs become rigid ; and the individual sinks into the sleep of death, unless relief be at hand.

The intensity of these phenomena, and the struggles of the circulation to counteract an influence which rapidly exhausts the vital principle, are in relation to the mental and physical

energies of the subject, the severity of the cold, and the duration of the contact.

In patients rescued from this state, and in those wherein the prolonged cold stage of ague, or the collapse of cholera, has produced severe internal congestions, the *reaction*, when it supervenes, is proportionably intense, is morbid, is a veritable fever.

Individuals who habituate themselves to the use of the cold bath, by degrees are obliged to increase the length of the immersion or the severity of the cold, before reaction ensues. But when it does occur, it is stronger and more permanent.

The rationale of these effects, and the therapeutical applications they admit of, come afterwards.

2. *Effects of the Tepid or Warm Bath.*—Water or vapor of a sufficiently high temperature to produce a comfortable sensation of warmth on the surface. Its thermometrical range may be from 86° to 96° : that of the vapor higher. The best description of the effects of this bath is conveyed to the mind, by saying that it is a general fomentation or poultice : what a local poultice is to a fretted sore, or to a bruised or broken limb, this is to the entire system.

Its effects are relative to the heat of the body placed in it : when the heat is excessive, it soothes and lowers temperature, without much, if any, subsequent reaction. It carries off the heat faster than it is produced in weak or diseased bodies. When prolonged in such persons, it reduces the vital powers to the lowest ebb.

Its soothing luxury is præminently appreciated by the wearied body, or fagged mind. The pulse and respiration are gradually quickened at first : yet by-and-bye the effect is pleasantly sedative. The agreeable warmth diffused over the surface gradually penetrates to the interior : the skin softens and relaxes : its fluids expand : the superficial capillaries are excited to increased action : exhalation and absorption are augmented : the blood is *derived*—determined to the surface from internal parts : congestions or accumulations are relieved : the circulation is equalized in the central and extreme parts : the frequency and fulness of the pulse are subdued : the action of the heart is calm : nervous irritation is soothed : the whole system is refreshed, relaxed, and expanded : fatigue is removed : fret, care, and trouble are chased away, and the individual feels disposed for, or falls into, a placid sleep.

In proportion as the temperature of the bath is increased above the due point of calm and comfort, it becomes an exciting

and disturbing agent. The skin becomes red, swollen, and stimulated; the heart and carotid arteries beat with violence; the face is turgid; the eyes injected; the respiration is frequent and difficult; the copious flow of perspiration affords some relief; but if the subject be at all disposed to cerebral congestion, he may have an apoplectic fit; longer endurance of the bath becomes impossible. On coming out the individual feels faint and exhausted: he can hardly stand: there is violent beating of the carotid arteries, and noise in ears: the pulse remains excited for some hours afterwards: and the sweat flows abundantly.

3. *Partial Baths.*—Water applied only to parts of the body, as half-baths, hip-baths, head-baths, hand-baths, foot-baths, &c., produce the same effects on the respective parts of the body, as the general baths do on the entire surface; are used with the same objects; and are besides specially calculated to exercise a derivative or counter-stimulant action.

The Douche.—The effects of cold water upon the body are modified by its falling from a height, and in an unbroken column, as by the mode in question. To the effects of cold water as ordinarily applied, it adds an extra element of power: namely, the *weight* and *momentum* of the stream. The effect of this is a forcible compression of the capillary vessels and superficial tissues of the parts whereon it plays. The continuous change of the water applied makes it a powerful abstracter of heat. If taken during a vigorous state of the circulation and vital powers, and but of short duration relatively, it induces a very energetic determination to the surface, or *reaction*. The cutaneous circulation is intensely excited: and nervous and muscular power are greatly developed. The action of the heart, however, is, more or less, disturbed; palpitation, fluttering, and nervous tremor are felt, even by the strong, during the operation; this is from the force of the stroke (if the column be of the usual thickness, and the fall from sixteen to twenty feet,) the shock, and the profuse abstraction of heat. When unduly continued, its intensely refrigerant and disturbing power makes it a morbid agent difficult to cope with. Even in the vigorous, unless followed by active exercise to maintain the reaction it produces, it determines internal congestions, and all the disastrous effects of an over-chill. Under its proper use, long-standing tumors are rapidly absorbed; muscular contractions give way; stiff and useless joints (where there is no ankylosis) recover: and all the superficial tissues and muscles acquire increased bulk and firmness: new energy seems com-

municated to the whole interior organs ; and a high exhilaration of animal spirits is felt.

THE following Propositions are legitimate deductions from the foregoing facts, or from others of familiar observation ; and develope some of the laws of the operation of water of various temperatures upon the living body ; with the practical doctrines and therapeutical rules they suggest :—

I. The effects of bathing, affusions, or fomentations, are principally, and, where there are no obvious medicinal ingredients, exclusively, owing to temperature.

II. The *sensation* produced by cold, that is, the abstraction of heat, is *relative*, not *absolute*. It is in direct proportion to the *difference of temperature* between the heat of the body, or of the part in contact, and that of the bath or medium of contact ; and modified by the vigor of the constitution, the temperament, morbid tendencies, and habits of the individual.

III. Every change of temperature gives a sensation of cold or heat, according as it is *lower* or *higher* than the previous temperature to which the part acted on has been exposed. The duration of this impression, however, *under the mean temperature* of blood-heat and the freezing point (i. e. about 62° Fahr.) is brief, and the sensation rapidly changes to cold ; more or less *above* that point, in the healthy and vigorous, the sensation of cold, especially if active muscular exercise be taken, will not continue long, but change to heat.

IV. The living organism is an exception to the physical law in virtue of which all bodies placed in communication tend to equalise their temperatures. It maintains nearly a uniform standard heat in the very lowest as well as in the very highest temperatures. The functions of *calorification*, and *perspiration*, are respectively the provisions made to keep up and to keep down the heat of the body to the due point of health.

V. Animal heat is freely developed so long as the nervous

energy and the circulating powers are unimpaired. It sinks with the depression of these ; and rises with their exaltation.

VI. The effects of the impression of cold are widely opposite, according as it is *prolonged* or *transitory*.

VII. When the operation of cold is *prolonged*, that is, when heat is abstracted more rapidly than it is produced, in the whole or in a part of the body, cold is a **SEDATIVE**. It first depresses, and, if continued, extinguishes the vital manifestations—exhausting that *sensibility* and *irritability* of the organic structures, which is the exclusive endowment of life, and the condition indispensable to the healthy performance of their functions. The intrinsic operation of cold, therefore, is *sedative*.

VIII. The sedative power of cold is primarily exerted on the nervous centres. It blunts sensibility; and, by diminishing the afflux of blood to the part whereon it acts, by constringing its capillaries, and making them propel onwards their contents, it takes off the vascular tension that keeps up nervous irritation. It thus removes, or prevents from accumulating, the first material conditions and elements of inflammation. No other known means effect this so efficaciously or so promptly. Cold, therefore, by the justest title, establishes its claim as the best **ANTIPHLOGISTIC**.

IX. The sedative effect of cold is in direct proportion to the inability to generate animal heat, the lowness of the temperature, and the duration of the exposure.

X. When the application of cold is *transient* or *brief*, it is a **STIMULANT**. It augments the sensibility and irritability of the tissues; exalting the vital principle; developing organic activity; increasing nervous power and vascular action. This stimulant effect is an *indirect* result of the operation of cold; and is the exclusive effort of the conservative powers of the economy to repel an invading foe—a principle whose unchecked action is destructive to life. This counteractive organic effort is called **REACTION**.

XI. Reaction is, *cætris paribus*, in direct proportion to the coldness of the water, the suddenness and duration of the immersion, the vigor of the circulation, and the heat of the surface and extremities at the moment of contact.

XII. The excitement or increased action produced by drugs is a premature and factitious *using up* of the energies of the frame, at too great an expenditure of its vital endowments—*irritability* and *sensibility*; a proportionate languor and exhaustion, or collapse, always follows. The stimulus of water produces a permanent exaltation of the vital energies, *without any subsequent collapse*.

XIII. Much if not most of the benefit of the stimulant power of water lies in the *shock* of its sudden application—the instantaneous and vivid impression made on the nervous centres by the change effected on so large a surface as that of the body—and the energies of the entire organism which are thus aroused.

The EXCITO-MOTOR, or SPINAL SYSTEM, is the *medium* of this impression, and the *route* along which the increased energy of the nervous centres diffuses itself in increased contraction of the muscular fibres. Hence cold, applied to the head or spine, equally lulls morbid sensibility, or arrests a haemorrhage, in a distant part, as when applied to the seat of the affection. Hence the power of strong nervous impressions in syncope and asphyxia, whether applied at the nervous centres or the extremities. The actions denominated SYMPATHETIC are referred distinctly and exclusively to the SPINAL MARROW. Grey nervous matter, wherever situated, elaborates nervous energy. The GLANGLIA (centres of grey matter and sources of power) form a beautifully-connected chain throughout the body subservient to excito-motor action. The spinal marrow is but a *chain of ganglia*.

If the impression be momentary or brief, and the vital powers not previously sunk too low, the heart and large vessels react on the severe constriction that for an instant paralyzes their functions; an increased vigor of circulation, and development of animal heat and power, ensue. But if the immersion be a little more prolonged, this *constriction* increases to *congestion*: the blood repelled from the surface, accumulates in the larger vessels of the interior; and the circulation is weakened. Reaction is more slow to ensue; but it is stronger and more permanent. In proportion as the impression of cold is continued beyond this point, that is, when it is too great and too prolonged relatively to the constitutional powers, the internal congestions augment; ineffectual struggles at reaction ensue, ending in exhaustion, torpidity, and death. The sinuses of the brain, and

the large veins and viscera of the chest and abdomen, are found gorged.

XIV. The function of calorification—the power of generating animal heat,—is increased by the stimulant action of cold. In proportion as cold bathing is persevered in, the temperature that availed to produce reaction at first, by degrees fails to do so. To produce reaction it is necessary either to prolong the immersion or to increase the cold. But the reaction is more intense in measure, and longer in duration. This is a manifest proof of the increase of constitutional vigor.

XV. The *immediate* effect of *reaction* is a more uniform and equable distribution of the blood, by the vigorous effort of the heart and great vessels to restore the equilibrium of the fluids repelled from the surface. The circulation throughout the whole capillary system of the superficial tissues, as well as of the interior viscera, is increased. The *consecutive* result is the augmented development of animal heat; the more healthy condition, if not the entire reestablishment, of the functions of secretion, excretion, digestion, circulation, and respiration. The organic activity of the whole system is exalted; every tissue feels the healthful impulse. The susceptibility to morbid impressions is diminished; and the susceptibility to healthful sensations is increased. Muscular flesh and strength are remarkably developed. In this way, in the course of time, the entire temperament of the individual is changed, and the constitution renovated.

XVI. The chemical constituents of the water plainly affect its power of reaction. Experience proves that bathing in sea water, or sponging with water in which rock salt or a strong acid, as the nitro-muriatic or pyroligneous, is dissolved, is much more stimulant.

XVII. When the surface of the body is warm, even overheated and freely perspiring, when vascular action and nervous power are at their maximum, the stimulant effect of the cold bath is doubly invigorating. Perspiration is not only checked with impunity, but gives rise to the more salutary reaction. But when the body is exhausted by continuous labor, by excessive perspirations or evacuations of any kind, then the vital energies are too much below par to bear what thus becomes the *sedative* action of cold. In these cases, it interrupts per-

spiration ; exhausts the languid nervous energy ; arrests the failing circulation ; congests the interior viscera ; and determines inflammation of the lungs, apoplexy, or death ; at the best, fever.

XVIII. Moderate cold (dry) is highly refreshing and bracing to those of vigorous or too rapid circulation, or who perspire easily and excessively. To those of languid circulation, or who are weakened by disease, it is chilling.

XIX. Combined cold and wet, *only when without sufficient exterior covering to prevent evaporation from the surface of the body*, are injurious ; producing in another way the effects of the prolonged immersion in the cold bath. It unduly robs the system of animal heat ; and determines the same internal congestions and irritation ; and their results, febrile reaction.

XX. Cold, *locally*, is an *astringent* and *tonic*. It induces strong contractions : it diminishes the calibre of the extreme vessels : it stimulates relaxed parts. In this way, as well as by diminishing the momentum of the blood in the neighboring parts, it restrains capillary haemorrhage. This contractile power is not an innate effort of the organism ; but a mere obedience to the physical law of the expansion of fluids and solids by heat, and their contraction by cold. In this respect, again, as in others, cold has an immense advantage over medicinal *astringents*, as vegetable bitters, metallic salts, ergot, &c., which contract the exhalent mouths of vessels, or the muscular fibres, in virtue of their own innate properties. Hence their action can never be certainly calculated ; and their administration is never without the risk of overdoing the effect intended ; and leaving behind, in one way as much mischief as it removes in another.

XXI. The gradual transition from heat to cold, produces scarcely any reaction. The change is calming, soothing, and refreshing to the healthy. If the skin is hot and irritated, the same temperature of water produces the same effect as intense cold in the ordinary state of the skin. Very extreme cold produces the same effect on the living tissues as a high degree of heat,—namely, the death and disorganization of the part.

XXII. The effects of the immersion of the body in a moderately heated medium, as the tepid water, vapor, or wet sheet

bath (which latter is a felicitous union of the two former) are an agreeable combination of the sedative and stimulant results detailed. It at once depresses unduly excited action, and excites unduly depressed action. It is essentially a general fomentation or poultice. Its effects are préeminently soothing, anodyne, and emollient, according to the previous wants of the economy, or sensations of the individual ; it removes all local irritation, pain, and general uneasiness ; and recruits exhaustion. The imbibition of the fluid it permits, macerates the animal fibre, relaxes stiff joints and spasmodic contractions, softens, expands, and dilates the superficial tissues, and modifies the texture of the skin ; rigid muscles lose their tension and solidity, yet acquire plumpness. This soothing medium diminishes excessive evacuations, and restores those which are suppressed. It is powerfully *derivative* ; acting as a direct but gentle stimulus to the skin, it promotes the activity of its capillary vessels, and its exhalent and absorbent functions. The uniform expansion of the fluids it favors—and the universal and intimate penetration by the blood of the solid tissues of the superficial as well as the deep-seated parts it promotes—facilitates and equalizes the circulation on the surface and extremities, while it relieves internal congestions and local determinations ; thus measuring to every part its own share of the vital current ; and apportioning the fulness and force of the circulation in organs to the size of their vessels, and the necessities of their function. It fulfils at once and in every part of the economy, every possible indication that can be demanded in ordinary cases. While it abstracts the morbid heat of those who *burn*, it increases, by accumulation, the heat of those who *shiver*. Its action on the skin makes it a *diaphoretic*—a powerful drain of viscid, fetid, and morbid humors, and uncombined or decomposed elements and *debris*, lodging in the system, and poisoning the fountains of health. Its action on the kidneys makes it a *diuretic* ; on the muscular fibre, an *anti-spasmodic* ; on the nervous system, an *anodyne*. It diminishes the excessive vascular plethora and secretions of the intestinal canal, and of its associated glands, which produce diarrhoea ; and, in opposite cases, it rouses the defective nervous power which presides over the peristaltic movements.

XXIII. The *specific heat* of the body—its capacity for caloric—is increased in febrile and inflammatory affections. In the intensest cases, the thermometer points but a very few degrees higher than the natural standard. Yet the energy with which

the heat is reproduced, and the frequency of immersion, affusion, or wet-sheet application, necessary to subdue it, compared with the effect of the same processes upon the most vigorous subject in health, demonstrate this accumulation. The amount of fuel spent in a short time—the increased consumption of the frame, proves how far the change of matter—the process of eramacausis—had gone ; and how much extra heat had been liberated but not indicated by the thermometer.

XXIV. At low degrees of temperature, according to the experiments of Dr. Edwards, absorption in the bath exceeds transudation. The phenomena of the cold hip-bath seem to furnish evidence in favor of this position. The increase of urine in this case, however, does not afford a legitimate inference in favor of absorption : for such increase of the secretion of the kidney may be but a *compensating* effort of the economy for the suppressed perspiration of the *submerged* surface. However this may be, this department of inquiry needs further investigation. Nevertheless it is consistent with *a priori* reasoning to infer that the constrictive effect of a cold medium on the superficial capillaries, will tend to prevent exhalation as much as it favors absorption. The extensive mechanical compression of the surface by so dense a medium as cold water, tends to strengthen this inference. It will probably be found that the amount of exudation from the skin is in proportion to the *rarity* and relative *heat* of the medium in which the body is placed. This is reasonable to suppose from the greater accumulation of fluids in the cutaneous and superficial tissues which it favors. On this account the vapor bath, or wet-sheet bath, is more derivative, more diaphoretic, perhaps less stimulant than, and equally soothing with, the warm bath. Does not this increased transudation in the rarer medium account for the well-attested superiority of the vapor to the warm water bath, in cases of gout and rheumatism, wherein certain morbid materials are eliminated from the system ? At all events, the results of the wet-sheet application—its thick, glairy, and fetid deposits—afford the best evidence yet adduced in favor of the position assumed.

XXV. The Douche is the most energetic mode of developing the stimulant action of cold water. Properly taken, it induces the most intense reaction—highly exciting the cutaneous tissues and vessels. In this way it simultaneously exalts both the *absorbent* and the *excrent* function of the superficial

capillaries ; the languid circulation round an indolent tumor, for example, is stimulated ; and the increased activity of the absorbents removes the deposit, which their defective energy permitted. On the other hand, the excessive stimulation of the same vessels and tissues, by the frequent and strong reactions brought about by this, and the other processes of the Water Cure, develops or degenerates into a morbid activity of certain portions, which, however, is fraught with the most fortunate results in obstinate chronic maladies. The boils and other eruptions which are thus produced (and which can be produced in the healthy by the same process) are the most beneficial of all counter-irritants. That they act as drains, and by the elimination of morbid elements, is a gratuitous and improbable hypothesis. This explanation, which it was very natural for Preisnitz to hit upon, well enough answers the purpose of water-curers, and satisfies the water-cured. But strict science forbids us to adopt an unproved and far-fetched theory, when we have an adequate physiological *rationale* before our eyes.

The more fever and general disturbance these *critical* eruptions introduce, the greater the consequent benefit. The entirely new, powerful, and perturbative action thus established in the economy has a highly revulsive effect on distant organs, and operates to arrest and remove the *habitual* morbid action of other quarters. In this way, chronic diseases become converted into acute, and often pass off with the termination of the latter. This confirms the experience of the older physicians, who were perhaps more accurate observers than the heated partizans of modern pathological theories.

XXVI. Simple water is better than any *poultice* ; as being more easily absorbed ; as less apt to be changed in its properties ; as less heavy ; as less expensive : having only the disadvantage of needing renewal more frequently.

XXVII. *Hot* water is essentially a stimulant, but a disturber of physiological action. It increases vascular erithism and nervous irritation. Hence it induces *suppuration*.

GENERAL THERAPEUTICAL CANONS

FOR THE SAFE AND SCIENTIFIC EMPLOYMENT OF COLD WATER :
DEDUCED FROM ITS PHYSIOLOGICAL ACTION, AND THE PATHO-
LOGICAL CONDITIONS OF THE SYSTEM WHEREIN ITS SPECIFIC
EFFECTS ARE INDICATED.

I. No counsels for the treatment of disease by cold water any more than by drugs, can be *absolute* or *exclusive*; nor can any canons comprehend every particular case and constitution. Much will depend (if the practice is to be really enlightened and rational) on the pathological knowledge, the powers of observation, and the reflecting habits of the practitioner, in determining the *doses* and the *timing* of the applications, relatively to the wants and resources of the constitution, and the nature and period of the malady.

II. The first and fundamental curative principle of the water treatment is TO DIRECT AND MODIFY THE AGENCY OF NATURE ; watching and imitating carefully her sanative operations ; restraining the action that is excessive ; exalting that which is depressed ; or recalling into the proper channel normal efforts perverted, or wasted by wrong deviation.

III. IN ACUTE DISEASES generally, the processes of nature are *over active*, tending to exhaust the vital endowments of the frame ; and more or less rapidly to accomplish its dissolution. In many cases, after running a specific course, the disease wears itself out, and ends by *resolution* ; in other cases, where the balance vibrates between life and death, the conservative powers of the constitution prevail in the struggle of opposing forces—previously accumulating morbid elements force an outlet, or the over-activity of a peccant part in a change of action, and the disease terminates by a *crisis*. A less meddlesome practice in acute diseases is therefore indicated than that sanctioned by the doctrines of British schools and of some continental lawgivers in medicine. The province of the practitioner is here almost exclusively, but sedulously, to watch the processes of nature, to respect and to aid, not to divert her

efforts : to excite the action that is too depressed, and to depress the action that is too excited.

IV. IN CHRONIC DISEASES generally, the processes of nature are not active enough—the self-reparative power of the organism needs to be stimulated to action ; and the impediments that shackle or nullify its efforts removed. Here *unassisted* nature is inadequate to develope that activity of the organic processes, which is necessary to overcome disease and to restore healthy function. Here therefore there is greater latitude for the display of the resources, and for the exercise of the genius, of the practitioner.

V. If the leading and paramount *indication* in the treatment of any given disease, be in one way and in one quarter, or another, either to depress excited action, or to excite depressed action—and this will probably not be disputed—then one single remedy, capable of being graduated in its doses, so as to exercise every degree of sedation or stimulation respectively, is calculated, under favorable circumstances, to operate against the whole host of maladies ; and to supersede, or be backed against, the whole list of medicines.

VI. An accurate acquaintance with the peculiar properties of water ; with the mode of developing these properties ; and with the morbid conditions of the system which forbid or demand recourse to them, must determine the general therapeutical principles that are to regulate the remedial employment of water.

VII. To obtain the indirect, stimulant, or tonic effect of cold water, its application must be resorted to momentarily and repeated frequently : the temperature must be lower or higher, relatively to the constitutional vigor of the patient : but, *ceteris paribus*, the higher the temperature of the patient and the lower that of the water, the greater is the reaction. *Excessive* reaction in the weak must be guarded against as much as *defective* reaction ; the strength of the patient will determine the measure of reaction that will be salutary, and *within* the limits of morbid excitatio.

VIII. To obtain the direct and sedative operation of cold water, it must be employed *continuously* for a longer or a shorter time, until the end of its application is answered. The

mode of producing this effect is all-important. Great judgment is requisite in the employment of sedatives to reduce morbid action to the due point, and no farther : also to avoid any interval or intermission in the refrigerant application, in order to prevent reaction, which would only augment the mischief to be combated.

IX. The stimulant action of cold water is indicated in diseases of debility, and states of depression.

X. The sedative effect of cold water is indicated in all diseases characterized by excessive nervous irritation and inordinate vascular action ; and diseases usually attended with interrupted secretions.

XI. A necessary precaution, suggested both by reasoning and experience, is, to avoid the sudden and severe applications till the patient has been prepared by undergoing the milder processes ; and to abandon the treatment in the same gradual manner as it was commenced with.

XII. Whenever the indication is to reduce high temperature and excessive vascular excitement, as in inflammations and fevers, the tepid bath, tepid affusion, or the wet sheet, are much more efficacious than decidedly cold water : because, on the one hand, the *prolonged* use of the former sufficiently abstracts morbid heat, and reduces the tension and velocity of the circulating system ; and on the other hand, it avoids the risk of internal congestions, and the chances of subsequent reaction, which the undue use of severe cold would determine.

XIII. The WET SHEET is calculated to supersede all other modes of general refrigeration ; as being equally potent in effect, as much more easy of control, and admitting a correcter graduation of its dose. It entirely does away with the objection as to the impossibility of determining the precise extent to which we ought to carry the sedative effect of cold. The speedy equalization of its temperature to that of the body prevents troublesome reaction, while the abstraction of the quantity of caloric necessary to vaporize the water effectually cools the surface. The pulse becomes softer and slower ; the skin cool, moist, and perspirable. It removes previous headache ; it recalls the failing functions of intellect ; it tranquillizes the general feeling of the patient, and induces a placid sleep ; no

new materials of strength are imparted, yet the patient is refreshed and invigorated. An appliance of curative art whose primary effect is to abstract a morbid heat which consumes; or to develope and accumulate a heat that is latent but unfelt and inoperative; whose secondary effect is to allay a nervous irritation which exhausts; and whose combined result is to liberate physical and mental energies which are overwhelmed—presents strong claims to the notice and trial of the Faculty in cases at least of bad fevers and inflammations.

This remedy is to be repeated as often as is the disposition of the morbid heat and action to return. When these are no longer evinced: when sedation has *told*: when nervous irritation and vascular excitement have been reduced to *the due point*—and a discriminating observer will easily decide this—then a further continuance of the application would only depress vital action so low that recovery would be impeded instead of advanced, if not sometimes rendered impossible.

XIV. The previous loss of blood formerly counseled in the cases just alluded to, and *then* sometimes necessary, is *now* superseded. The indication to lessen by depletion the violence of the local affections, or the general fever, is certainly, promptly, and safely accomplished by a cooling bath, or affusions; but better far, by the wet sheet.

XV. In all cases of *active* hæmorrhage from the lungs, stomach, bowels, uterus, or bladder, dependence may be placed on the wet sheet alone, to keep down vascular excitement, and to quell nervous irritation. Here the sedative action of cold on the system in general, acts upon the large vessels which supply those that are bleeding. In addition to this, the *local constriction by cold* of the bleeding vessels, is an *open* or subsequent practice, and is to be determined by the judgment of the practitioner. The severity of the hæmorrhage, the strength and condition of the patient, and the amount of effect produced by the wet sheet, are the considerations which must dictate the *methodus medendi*. The uncomfortable sensation of cold or wet in which the patient may be kept for a time, is of advantage. The more exclusively that *sedation* is effected without *reaction*, the better; as such result would only undo the object sought to be accomplished. Cold drinks, cold air, cold lavements, cold injections, cold applications to chest, abdomen, or thighs, *duly guarded*, will do more in the cases in question, than all drug-medication ever achieved.

XVI. Epistaxis (bleeding from the nose) will be immediately checked by a cold head-bath—immersion of the occiput in water: as also from the intractable bleeding from the gums in cases of *Scurvy* and *Purpura Hæmorrhagica*.

XVII. The wet sheet is equally suitable in almost every case where a warm bath is indicated. It is preferable in cases of great debility and suffering. Its effects on the system are equally powerful: while its application can be made without delay, trouble, or cost: without the hazard either of exhausting or exposing the patient: and without the risk either of undue heat, or undue coldness of the bath: all which are too often grievous draw-backs in the practical administration of baths brought to the houses of patients.

XVIII. The conditions and laws of *reaction*, being at present better understood than before, the *former* contra-indications to the cold bath, save in a few instances, are now invalid and repealed. There are few cases wherein the stimulant power of cold water is indicated, that will not bear the cold bath at once; and wherein reaction may not with certainty be ensured. By the previous temperature given to the body; by its equalization over the surface and extremities; by the general fomentation of the wet sheet; by the relative coldness of the water, and brevity of the immersion—the object of stimulation may be accomplished in every case, even in the most delicate women, children, and old men. In this way, to the most debilitated and reduced, the tonic effects of the cold bath are obtained with impunity. Hence it is a cardinal rule, never to omit to increase the temperature of persons of feeble circulation, or languid reaction, before the bath. To the same end, active exercise before the bath, and vigorous muscular movements or friction of the surface and extremities in the bath, are, if possible, not to be dispensed with.

After the body has got quit of much of its superfluous or morbid humors, by the copious exudation of the wet-sheet process—after the tissues have been thus macerated and fomented, and the circulation thus equalized—after vascular and nervous excitement have been thus tranquilized, and the whole system so agreeably relaxed and soothed—the *tonic* effect of the cold bath immediately following, may be easily conceived and accounted for. The athletic frames of northern and oriental nations, and of the ancient Romans, prove the bracing qualities of baths *in effect* thus taken.

XIX. The stimulant operation of cold, with the above precautions to ensure reaction, is indicated at once as curative and hygeienic.

1. In the entire class of Nervous Disorders—Hypochondriasis, Chorea, Hysteria, Epilepsy, Tetanus, Trismus, Hydrophobia : or cases even complicated with considerable functional or organic derangements : marked lesions of the latter kind, however, are comparatively rare in the subjects in question.

2. In the *intervals* of Intermittent or Periodic Diseases—of Ague, Hooping Cough, and Spasmodic Asthma, Neuralgic Gout, and Rheumatism.

3. In Scrofulous, Lymphatic, and Cachectic habits of all kinds ;—in Chlorosis (ancemia) Diabetes, &c.

4. In Chronic inflammations of the pulmonary, and gastrointestinal Mucous Membranes. The more intimate sympathy of the skin with the mucous membranes, than with the parenchymatous viscera, points out the necessity of largely addressing the cutaneous functions in our efforts to remedy Bronchitic and Gastro-enteric affections. In Chronic Catarrh with dilated air-tubes, relaxed mucous lining, and profuse, fetid, or even purulent expectoration, the cold bath properly administered as above, is the remedy *par excellence*. It is equally potent in the disorders of the digestive mucous lining, and of its associated viscera ; as well as in derangements of the alimentary canal, not attended with inflammatory irritation.

5. In diseases of the pelvic viscera, connected with relaxation, as Uterine and Vesical Catarrh, Menorrhagia, Metrorrhagia, (a very distinct affection but often confounded,) in Leucorrhœa and Gonorrhœa.

6. In local paralytic affections, uncomplicated with cerebral disease ; as loss of power in the sphincters of bladder and anus.

Lastly. The stimulant power of cold water is advantageously had recourse to, to effect a revulsive action on remote organs ; to dissipate local congestions ; to arrest *passive* haemorrhages ; by determining the activity and fulness of the circulation to the superficial tissues, or to remote localities.

XX. The medical world is divided in opinion as to the value of *cold affusion*, because its mode of operation, the indications for its use, and therefore the fitting circumstances of its employment, have not been accurately conceived. Hence it has been unduly neglected, although an *orthodox* practice. Its sedative effect—its prolonged use—need now be *almost exclusively* confined to the early inflammatory stages of the dis-

ease ending in *Hydrocephalus*—the body of the patient being fomented by the wet-sheet process. But when *effusion*, the result of inflammation, has taken place, and a tendency to paralysis exists, then the *stimulant* action of cold is indicated. After the subsidence of the violent symptoms of *other* acute diseases, when the patient has sunk into the same comatose state as the former malady terminates in—with pale countenance, occasionally suffused with a flush, dilated pupils, strabismus, and slow pulse—the *stimulant* action of affusions is a remedy of high value. Under it the patient awakes from his comatose state, and cries violently. The skin becomes cool; the pulse small and frequent; a breathing moisture bedews the skin; the patient doses quietly, and improves with every repetition of the remedy.

XXI. The combination, or alternate use of the stimulant and sedative powers of cold water, (such as is prescribed in the wet-sheet fomentation, and the cold bath after it,) is of *indispensable* aid in the treatment of the following forms of disease:—

1. In the various types of fever, continued, remittent, intermittent, inflammatory, eruptive, typhoid, hectic.
2. In painful inflammatory affections of the abdominal or pelvic viscera.
3. In chronic derangements of the same parts not essentially painful; indicated by Indigestion, defective or excessive biliary secretion, Jaundice, Constipation, Diarrhoea; loaded venous system, Hæmorrhoids.
4. In chronic inflammations of Uterus, Vagina, Bladder, or Kidneys; in Dysmenorrhea, Amenorrhea, Leucorrhea, Uterine and Vesical Catarrh.
5. In painful Nervous and Spasmodic Affections; in Neuralgia, Sciatica, Lumbago, Gastralgie, Colic, Nephralgia; in Stone in bladder, Ureter, Urethra, or Gall-duct; in the convulsive diseases of infancy.
6. In persons of full habit, disposed to cerebral or pulmonary hæmorrhage, or those affected with hypertrophy, dilatations, or valvular defects of the heart and great vessels.
7. In all stages of organic diseases: in the last stages of cancer, it is the best source of relief.
8. In states of debility, which are very seldom pure diseases, but the mere symptoms of functional disturbance or organic alterations of important viscera.
9. In vitiated and depraved conditions of the blood: in re-

laxed, scrophulous, and leucophlegmatic habits ; in Cachexia, Gout, Rheumatism, Chlorosis, Diabetes.

10. In the tubercular diathesis ; in the incipient stage of consumption.

11. In all the multiform genera, species, and varieties of Cutaneous Disease. From the modification effected on the tissues of the skin, by the softening, soothing, expanding, and macerating effects of the wet-sheet fomentation, as well as from its sympathetic action on the interior viscera, this remedy is peculiarly indicated, wherever the skin deviates from its healthy condition, either as regards its capillary circulation, or its functions as a secreting and excreting organ.

Lastly. In that stage of acute diseases marked by great exhaustion, and accumulation of the fluids in the interior organs—in the retrocession or imperfect development of eruptive diseases—in the cold fit of Ague—in the congestive forms of Fever—and in the collapse of Cholera, the wet-sheet fomentation will probably accomplish, as effectually, all the ends of Dr. Armstrong's hot-air bath. The bleeding sometimes advised in such cases, is as bad as bleeding a person in a swoon, or during the *shock* of an apoplectic stroke. The powers of life are already sunk too low : the heart's action not only shares the general debility of the system, but is moreover oppressed by a load of blood, which it is unable to propel.

In all these cases, the sedative action of water is required so far as it is necessary to subdue the organic irritation which is the *fons malorum* : the debility of function left is corrected by the stimulant action of the bath.

XXIII. In the worst cases of these highly congestive forms of disease just mentioned, and in others of more rapid occurrence, as from *shocks* and *strokes*—as well as in persons asphyxiated by drowning, hanging, or poison—in these otherwise hopeless cases, there are only two available resources left ; but these of great power, and usually crowned with the most triumphant success. In such instances, the failure of the powers of organic life—the arrest of the circulation and respiration, and the entire suspension of nervous energy, are the evils to be combated. Sensibility and irritability are not exhausted ; they are *overwhelmed*.

1. The first thing to be attended to, is to have the patient placed in the shallow cold, or tepid bath ; the head and shoulders supported : firm, constant, and universal friction of the surface by the wetted hands, and by *relays* of assistants, is to

be kept up for many hours. Cold is proved most favorable to the maintenance of *latent* vitality : as the vital energies become resuscitated, the degree of heat must be proportioned to the amount of vitality, the same as with a frost-bitten limb.

The warm bath, though often recommended, and though sanctioned by the Humane Society, is, on strictly physiological grounds, not justifiable in cases of asphyxia, till circulation and respiration begin to be restored, and till the congestions of the interior begin to give way. Then the intense reaction which by-and-bye comes on, is to be combated by the cooling processes aforesaid : *for depletion is death.*

2. Simultaneously with these efforts, Galvanism by means of the Electro-magnetic battery, if procurable, offers an almost infallible resource. One wire should be placed over the *medulla oblongata* (the nape of the neck) : the other to the stomach-pit, or to the diaphragm on each side, between the eighth and ninth ribs, reaching to its muscular fibres by means of fine needles. Theory and experience—the results of our own practice, and the recorded cases of success in that of others, justify the recommendation of this, in bad cases, as the *unica salus.*

XXIV. The wet-sheet is an invaluable hygeienic resource to the healthy.

1. In fatigue after mental and bodily exertion ; after journeys ; after watchings.

2. In sedentary occupations ; in seclusion and study ; as well as in the activity and strife of public and professional life : and in the laborious dissipations of *haut ton.*

XXV. The daily use of the cold bath—or copious ablutions with cold water—by strengthening the skin and mucous membranes, and accustoming the surface to alternations of temperature, is the surest preventive of catarrhal affections, and the best *hardener* against atmospheric vicissitudes.

XXVI. THE STIMULANT EFFECT OF WATER IS CONTRA-INDICATED, OR TO BE USED WITH GREAT CAUTION—

1. In diseases of the Brain or Spinal Cord—or in those disposed to cerebral congestion and to Apoplexy. In cases of Paralysis dependent on those diseases.

2. In nervous affections, which a careful diagnosis has ascertained to depend on abscesses, ulcerations, (*Ramollissement*) tumors, or clots of blood in the brain : or a collection of fluid in its ventricles : or a similar condition of the spinal cord or its

nembranes. Such patients often die suddenly, after leaving water establishment as *apparently* cured. The Physician who consults his own reputation, will take care to send off these patients *with an issue in their necks*: no matter what crisis they may have had, and what health they now seem to have. Nowhere is a sound judgment and cautious diagnosis so highly requisite.

3. In the tendency to *active* hæmorrhage from the lungs: or formed tubercular disease of the lungs.
4. In organic diseases of the heart, hypertrophy of one or both ventricles—in dilatations—or valvular deficiencies.
5. In diseases of the skin, where there is much irritation of the cuticular vessels.

XXVII. The cold hip-bath, with hard friction of the abdomen and loins all the time of immersion, is præeminently beneficial—

1. As a revulsive remedy in acute and chronic diseases of the brain.
2. In acute inflammation of the thoracic viscera.
3. In chronic affections of the abdominal viscera—all forms of Indigestion, Constipation, Diarrhœa.
4. In diseases of the pelvic viscera, in uterine and vesical Catarrh, Leucorrhœa, Gonorrhœa. This bath is contra-indicated during the menstrual period. Pregnancy is not a contra-indication.

XXVIII. The *tepid* hip-bath, *tepid* half-bath, or the wet-sheet, is the best anodyne in cancer of the womb. With hard friction and long continued, it is the best revulsive and restorative in the sudden inroads of alarming illness, or the shock of serious accidents: in threatening apoplectic fits, or after them.

XXIX. The head-bath—or ice-cap—the steady and continuous abstraction of heat—is indicated in cerebral inflammation and congestions: of higher temperature and shorter in duration, in neuralgia and certain rheumatic affections of the scalp. It not only constringes the vessels of the integuments, but it diminishes the action of the carotids, and lessens the afflux of blood to the entire head.

XXX. The DOUCHE, under proper advice and restrictions, may be safely taken as a general stimulant, by all patients

previously using the cold bath with benefit. Its local application is peculiarly indicated—

1. In Sprains; in all the various diseases of the joints, and their structural alterations, short of ankylosis: in muscular contractions.

2. In indolent and growing superficial tumors of all kinds (not aneurismal.)

3. In the advanced stage of Insanity, characterized by stupor, incoherence, dementia. The douche, properly administered, will be acknowledged to be a more humane procedure than, and an equally effectual stimulant with, the deep incisions advised by some to be made along the scalp in these cases.

XXXI. The license given by medical authorities to employ the sedative power of cold in cases of common inflammation of the surface and of the extremities of the body, is, without just reason, refused to internal inflammations, as of the membranes and organs included in the skull, thorax, and abdomen; from the theoretical dread, that the blood may be thrown upon interior parts, so as to aggravate the inflammation or produce congestion. This reasoning, though plausible, is fallacious; and is every day practically refuted, in inflammations of the brain and its membranes. Cold applied to the surface, not only acts as a sedative to the superficial vessels, but by-and-bye, operates equally a constriction upon the deeper seated, preventing their congestions, and hindering the impetus of the sanguineous current to them. By *derivation* to other quarters, and by the wet-sheet to reduce general fever, and to moderate the violence of local symptoms, cold may be applied with equal safety and advantage to the chest or abdomen, in inflammations of the membranes or viscera within these cavities.

XXXII. Partial Cold Baths constantly applied—as to the hands, elbows, or knees, in acute affections of the hands or feet, are of great importance as *local sedatives* to keep down permanently the morbid action of a neighboring organ or part, whose blood-vessels it supplies. Those who attribute this practice of Priessnitz to his knowledge of Revulsion, do him injustice. It indicates higher knowledge.

PART III.

THE PROCESSES OF THE WATER CURE: THE VARIOUS MODES
OF ADMINISTERING THE REMEDY.

ABLUTIONS.

THESE are generally the mere preparation for more active treatment, and are a test of the degree of reactive power possessed by the individual ; and a measure of the capabilities and necessities of the system for the ulterior processes of the cure. As a means also of maintaining recovered health, or of invigorating the constitution, when the full processes are not at command, or not indicated, ablutions deserve extensive if not universal adoption, and may be had recourse to with safety and benefit alike in infancy and in age, by females as by males. In even advanced stages of Pulmonary consumption the writer has long recommended their use, and with very decided advantage. The temperature and quantity of the water used—the length of time of its application to the entire surface by towel or sponge—and the degree of friction wet and dry, with which it is to be accompanied and followed, are to be regulated by the feelings of the patient and the effect produced. When warm from bed in the morning is the best time for these ablutions ; reaction is thereby more certainly ensured. A smart walk after it, or, in very debilitated patients, a return to bed again, with friction of the skin under the bed-clothes, will further conciliate this salutary effect. The same ablutions, &c., may be gone through at night ; and under certain circumstances, once or twice during the day.

THE RUBBING WET SHEET.

This is an intermediate process between ablutions and immersion in the cold bath, whether of the half or of the whole of the body ; and is therefore another of the preparatory measures of treatment. A large coarse linen sheet adapted at once to imbibe water and to excite friction, wrung out of cold water, or allowed to be dripping, is dexterously thrown as an envelope round the body : the patient at the same moment commences active friction on the fore part of his person, while an assistant

plies the same process on all the posterior parts. This rubbing may be continued from two to five minutes, when the skin becomes much reddened, and a comfortable glow is felt. A dry sheet is then used in the same way, and a very exhilarating reaction ensues.

This kind of bath is a more invigorating agent than mere ablution; because its momentary shock is more decided; evaporation from the surface is prevented; and a greater amount of friction is permitted. The temperature of the water, as well as the quality and quantity of friction, must be appropriated to the delicacy of the patient and the nature of the case. This is the cheapest, the readiest, and the best of all portable baths. It is a convenient application at home, and no incumbrance on a journey; realizing the advantages of the shower and plunge baths, without their occasional disadvantages, and always at hand:—“*Delectat domi, non impedit foris, pernoctat nobiscum, peregrinatur, rusticator.*”

THE SHALLOW, OR HALF BATH.

This is the common oblong bath used in our bed-rooms, but containing only from three inches to one foot depth of water, of various temperatures as the case may require. This bath is used in two opposite modes, and with two very distinct intentions. It serves, in one class of cases, as a preparation for the full bath; and it answers admirably in another class of cases, where a prolonged continuance in the bath is wanted to produce a derivative effect.

I. With the first object it is frequently used morning and evening, and commonly after “unpacking” from the wet sheet. The patient remains in it from three to ten minutes, being well rubbed by an assistant, and himself joining, if possible, in the operation: a few basins or buckets of cold water are generally thrown over him, before he rises from the bath. Exercise is advisable to be taken after this, as after all the other baths.

II. The second object for which the shallow bath is employed, constitutes it the “*decus et tutamen*” of Priessnitz; demonstrating at once the resources of his system, and achieving some of the highest triumphs of his genius. In persons suddenly stricken down by violent maladies—in inflammatory attacks—in congestions of the nobler organs—or when collapse of the vital and voluntary powers exacts the alternative of obtaining speedy reaction or incurring sudden death—in such cases, prompt and powerful measures directed by the soundest

judgment can alone save the patient: this means, or without its *ally* before-mentioned, is the single resource and the sole warranty of hope. The temperature of the bath for this purpose must be lowered, and its duration prolonged from one to four or six hours, with continued friction, until reaction, consecutive fever, or derivation to the extremities, is decidedly established.

THE FULL BATH, OR GENERAL COLD BATHING.

This is of immemorial usage, whether in sea, river, or lake, both as a curative agent in disease, and a preservative in health. Its genial action depends on the degree of shock received, and the amount of reaction ensuing. Much fallacy prevails as well among the learned as the illiterate, as to the supposed danger of cold bathing, when the body is bedewed with perspiration. The practice of Priessnitz, and of ancient and modern nations, shews with how little risk, and how much benefit, the body covered with sweat, may be plunged into cold water, or rolled in the snow. But the same holds true with the body freely perspiring from active exercise; provided there be no material structural alteration of the heart, lungs, or great vessels; and the system is not in a state of decided fatigue or exhaustion. It is a customary thing for school-boys in the summer season, in the brief mid-day interval of their classes, to run to the bathing spots of rivers or canals, and plunge into the water in profuse perspiration. This the writer has done, and hundreds of his school-fellows, hundreds of times, not only without any bad effects but with great advantage. Animals when pursuing their prey, or escaping from their pursuers, invariably take through all opposing waters, and emerge from the bath not only unharmed but invigorated. This aquatic hardihood may, with a very little preparation, be safely tested throughout the severest weather of winter, if a smart walk be taken *after* as well as *before* it. But this is counsel only for the strong in limb and valiant in heart. Those with whom it agrees will not soon regret the recommendation or decline the practice.

In the water-cure treatment, before taking the cold bath, the temperature of the body is duly raised, the circulation equalised, and visceral irritation soothed by the wet sheet fomentation; much more rarely now, and very properly so, by the sweating blanket. The shock is thus more general and the reaction more complete. The strength, spirits, and appetite are all simultaneously increased. The early morning is the best time

for this bath: but it may be repeated with great benefit more than once during the day, if the immersion be but momentary, and the system possessed of tolerable vigor. The patient must never remain in the bath till he feels chilly, unless under febrile excitement. The more active exercise while in the bath, as by swimming the better. Under severe crises, as well as in the bodily conditions formerly mentioned, cold bathing for its stimulant effect, is obviously improper.

THE HIP BATH.

Had Priessnitz done nothing else than develope the manifold and manifest advantages of this energetic remedy, he would still have done enough to entitle him to the lasting gratitude of posterity. Its powerful aid is had recourse to, to accomplish two opposite intentions.

I. As a *tonic, stimulan', solvent, anti-spasmodic, and anodyne,* in obstructions, engorgements, chronic irritation, and acute inflammations of the digestive apparatus, and of the pelvic viscera.

II. As a powerful *derivative* in acute and chronic affections of the heart, lungs, and brain.

According as either of these intentions is to be accomplished, so is the temperature, duration, and frequency of the bath to be varied. The person is covered while in the bath, all except the parts immersed. The water usually reaches the height of the navel, and the tub is only large enough to admit of free motion of the hands and arms for rubbing. The temperatures varies from 40° to 60° Fahrenheit, and the duration in it from a quarter of an hour to a full hour or longer. While in the bath, the patient to employ himself in *thoroughly* rubbing the belly, sides, and loins, first with one hand and then with the other. Very soon the first chill of the bath subsides, and the heat of the water by degrees equalizes itself to nearly that of the body. If the stay in it therefore be prolonged, it is necessary to change the water once or oftener.

To fulfil the first intention specified, the temperature must approach the higher range given, that is near 60° , and its duration need not exceed twenty minutes; but the bath should be repeated several times a day: on quitting it, reaction is further promoted by hard friction with a coarse dry towel. Two of such baths *per diem* is a usual dose: in special cases, and for a short time, five or six a day may be taken as in severe constipation, chronic diarrhoea, dysentery, passive uterine haemorrhage, uterine and vesical catarrh of a profuse character.

To fulfil the second indication, the water must be colder, the duration in it more prolonged, and the friction more severe. To aid its derivative effect, it is sometimes necessary to apply evaporating bandages to the head or chest, according to the existing disease to be combated.

The best time for the administration of hip baths is between meal hours, when the stomach is not loaded; and the indispensable exercise can be made both to precede and to succeed the bath. The muscularity of hip their prolonged use induces is very striking.

THE HEAD BATH.

This is a highly energetic remedy used in determinations of blood to the head, the delirium of fever (the patient being in the wet sheet,) headaches, convulsions, epilepsy, rheumatism of the scalp, neuralgia, ophthalmic diseases, deafness, loss of smell and taste.

The patient lies on a rug or mattress, and the back of the head is placed in a broad shallow basin containing from two to four inches depth of cold water. Each side of the head is also placed in the water in succession. The duration of the bath may be from five minutes to half an hour. At the conclusion the head is to be well dried and rubbed with a towel. This friction, however, is only allowable where there is no inflammatory action to combat.

The frequent and prolonged affusion of cold water upon the head, even to the production of intense pain from the chill, is one of the most powerful tonics of the nervous centres; and has been long our main anchor of hope, when combating with the old weapons, Hypochondriasis and other nervous affections. This constitutes a very essential element of the treatment of these complaints by a *reverend* practitioner in London of some celebrity.

THE FOOT BATH.

Unless in sprains and local injuries, this is chiefly if not entirely, used as a *derivative* bath in affections of the head, chest, stomach, intestines, and uterus. For this purpose the water should be from two to six inches deep, and the whole foot, sole, ankles, and legs, are to be thoroughly rubbed with firm hands, from ten minutes to half an hour; changing the water as it gets hot. The feet must be warmed by exercise both before and after the bath. This is the remedy, *par excellence*, for habitual cold feet. It is an effectual controller of

uterine haemorrhage. If the determination of blood to the higher organs still continues, wet compresses to them (uncovered by dry bandages) will be occasionally necessary.

PARTIAL BATHS.

The application of *partial* baths, adapted to different members of the body, has been considered as a proof of Priessnitz's admirable tact, and knowledge of derivation. If the bandages in question are *heating* bandages, i. e. wet compresses covered by dry ones, so as to prevent evaporation, then the proof is valid, and the praise deserved. For the nature and object of such a bandage is to determine a *molimen* of the fluids to the part whereon it is applied; of course diverting them—deriving them from neighboring localities, and at their expense. This is at least the *received* theory of derivation or counter-irritation. But if, as we take it, Priessnitz's practice is to place a higher part of an affected member—as an elbow or a knee in the case of an injury in the hand or foot—in a constant cold bath, or to cover it with compresses constantly renewed before they evaporate or get warm; his object then is, *Sedation*—to lessen the *molimen haemorrhagicum* to the part *in another way*; and shews at once his clear conceptions of the varied operation of water, and his strong inductive powers in turning them to practical account—a tact and discrimination greater than in the other case at least; as using the better means to attain the same end.

The *leg-bath*, or *arm-bath*, when ulcers, fixed pains, skin diseases, nodes, &c., affect any of the extremities, are highly useful applications: according to the duration of the bath and the temperature of the water, a sedative, stimulant, revulsive or anodyne effect is produced. The *eye-bath*, *ear-bath*, *finger-bath*, belong to the same category.

THE DOUCHE.

This remedy belongs exclusively to the treatment of chronic diseases. As it is the most powerful of all the water-cure processes of its class—the most powerful when properly indicated and judiciously applied, to exalt the energies of the organism, to complete what the other parts of the treatment might fail to effect, namely, their conversion into acute diseases, and their cure by a *crises*;—so when misapplied—when the true pathological condition of the patient is not determined—when fever is present, when there is disease of the blood-vessels, heart or brain, or the organic nerves are paralyzed, it is the most pregnant with mischief.

The Douche is the strongest local stimulant of the vascular and nervous systems. Inducing a strong reaction and determination to the surface, it tends préeminently to dissipate the remnant of chronic engorgements of the mucous tissues, and visceral congestions of all kinds ; but after other remedial means have laid the foundation of recovery—resuscitating the energies of the whole organism, exhilarating the spirits and quickening the senses, it is very intelligible how it should facilitate and hasten the arrival of the crisis. The whole secerning and excreting apparatus *seem* to take a new activity ; and their altered products *seem* as if the elimination from the system of every thing morbid and effètē that had resisted the usual decompositions and transformations.

The Douche is a column of water of variable thickness, descending from a variable height : from three to six inches is its usual diameter, and from ten to twenty feet its ordinary fall. Its effect is determined by the state of the body, the force of the fall, and the coldness of the water. To insure its good effects, it should be taken at the time of the highest bodily activity and vigor, as early in the morning in the stronger, and between breakfast and dinner in the weaker—in both cases always premising smart exercise short of fatigue. Active exercise is especially necessary *after* the douche. The reason that necessitates this forbids the drinking of much cold water at this particular time of the day, at least till reaction be fully established.

The average duration of the douche is from three to ten minutes : the uninitiated should never exceed the former. It is usual to commence this bath by receiving it on the palms of the hands, and washing the face, head, and chest. The shoulders, neck, spine, loins, hips, and extremities are then subjected to the powerful stream ; avoiding the stomach-pit, and the abdomen. The hands are sometimes held up and spread above the head to protect it from the fall of water ; allowing the stream to act as a shower-bath. In *local* complaints, as palsies, sprains, tumors, the affected parts are particularly subjected to the influence of the douche. This bath is highly enjoyed, and always gladsomely anticipated—a proof that it leaves no ungrateful reminiscences—which is much more than can be said for any of the *old* modes of cure.

In cases where this measure is strongly indicated, two short douches per diem are more advantageous than one prolonged one.

THE WET SHEET.

This application is used for the two-fold purpose of increasing or diminishing the animal temperature ; in either case it is equally *anodyne* and *antiphlogistic*—soothing aches and irritation—removing languor and fatigue—tranquilizing the pulse, and subduing fever. It opens the pores, favors cutaneous transudation, and aids the elimination of effèt elements and morbid materials. Hence the intolerable odor sometimes exhaled from the sheets ; the thick coating of slimy matter with which they are varnished ; the debris, smell, and color of medicines and ointments long before used deposited in them ; and the eruptions that soon appear upon the skin. The fluids repelled from the surface by the first chill return with a brisker circulation : the escape of caloric is prevented by the covering : and the moisture of the sheets is converted into vapor. According to the delicacy of constitution, and the feebleness of the reactive power, the heat of the water and the weight of the covering must be increased. The imbibition of water by the body in this and the other processes is manifested by very *unequivocal* symptoms. This origin of the effect in question, in the wet sheet at least, is a *legitimate* inference.

The wet sheet is Priessnitz's greatest discovery, and far outstrips all other therapeutical improvements ever made in the healing art. This is destined to be by-and-bye the universal domestic remedy used by mothers and nurses in the outbreak of all illnesses ; and will supersede, in nine cases in ten, both the employment of medicine, and the attendance of the physician. With every water-cured person its efficacy will be an article of *faith* that no arguments will stagger, and its practice in every emergency a source of confidence that no authority will baffle. Henceforth the name of Priessnitz will be a household-word, and a grateful posterity will embalm his memory. Few are the complaints in young or old in which this remedy will not be hailed as one of the best boons ever given by Heaven to suffering mortals. This language is strong, and may be called enthusiastic. But we appeal to those who have tested the powers of the wet-sheet fomentation, whether our meed of praise is commensurate with its merits. In weariness and watching—in fatigue and cold—in restlessness and anguish—in acute diseases and in chronic ailments—in fevers and inflammations—in shivered nerves and fretted brain—in worn-out stomachs and palsied bowels—in irritated skin and broken bones—in quelling morbid heat and soothing

morbid sensibility—in the quiet routine of home and the bustle of travel abroad—in infancy and in age—in the weak and in the strong—in cottages and in palaces—in courts and in camps—in hospitals and in prisons—in all climates and seasons—shivering at the poles, or scorching in the tropics—in all the multiform ills that flesh is heir to—the wet sheet will be the first remedial resource of the sick, and the last earthly refuge of the dying.

The wet sheet is applied in the following way:—A very thick blanket is first spread upon a mattress; a sheet of coarse linen is then wrung out on a pole; this is smoothly spread over the blanket; the patient then reclines at full length, and has the sheet wrapped round him, fitting it closely about the neck, and securely covering the feet. The blanket is then with equal care tucked under the neck and shoulders, the trunk and limbs of one side, and then of the other. This “packing” which resembles a compact bale of goods, is then completed by a load of additional blankets and coverings, or preferably by a down-feather bed, which is well tucked in from the neck to the feet. In this state the patient is allowed to remain from half an hour to an hour. The first impression is disagreeable, but it is only for a minute or two; and is succeeded by a soothing freshness heightening into a delicious glow; which would end in perspiration if prolonged. On being unpacked from this envelopment, the patient takes the cold or tepid half-bath or full-bath, and is well rubbed in the water by an attendant for a longer or a shorter time, himself assisting in the operation. He then dresses quickly, and goes out to his customary walk and water-drinking. This process is usually gone through the first thing in the morning, and commences the daily routine of treatment. It is repeated or not in the subsequent parts of the day, according as it is indicated. The sensations of the patient will often be the monitors for his extrication, and the inducement for its repetition or cessation. When the object is to quell fever, the sheet must be changed every quarter of an hour or half hour, or as often as may be necessary to bring about a cool surface. When the due abstraction of heat and reduction of fever is effected, the patient is then put into a slightly tepid bath, and well rubbed.

If determinations to the head occur during this process, cold applications to the scalp are to be constantly renewed as they get warm. If the feet or legs continue cold too long, they may be kept out of the envelopment, and wrapped in flannel.

The fallacy of catching cold from damp beds was long ago

sufficiently exposed by one of the shrewdest and ablest practitioners of his day, Dr. Heberden, and will be found in a quotation in another part of the volume. The soundness of this judgment cannot *now* be questioned, as the innocuousness of such exposure is confirmed by all the facts of Priessnitz's extensive experience, and by those of his numerous followers.

THE WET BANDAGES.

These applications accomplish on a small scale, and on fitting places, what the wet sheet does for the whole body. They are employed also with the two-fold object of cooling or heating, of *diminishing* or *increasing* action, according as evaporation is permitted or prevented, and according to the frequency of their renewal. In the one case, when the object is to lessen action—to subdue or prevent inflammation—to allay the irritation of wounds, bruises, or fractures—the fomentation is kept constantly renewed, but allowed to evaporate. In the other case, it acts as a counter-irritant; it transfers action from the deeper-seated parts to the surface, allaying irritation, relieving visceral congestions, dissipating engorgements, opening up obstructions, solving spasm, and restoring secretions. These objects are further aided by *derivation* to distant parts, as by the hip-bath and foot-baths.

The wet bandages are applied to various parts of the body. The first or refrigerant bandage consists of linen of suitable size for the part affected, folded several times, and dipped in cold water, gently expressed, and placed on the part affected. This application is renewed every five or ten minutes, according to the cooling effect intended: and continued night and day without interval, until the inflammation is removed or danger averted. Neglect in their change may cause the worst results, by promoting what it is intended to prevent. These cooling bandages are used when active inflammation is going on; in acute affections of the head; in local injuries; in suppurating surfaces, as boils; in compound fractures—and wherever the indication is to lessen action.

The heating or stimulant bandage only differs from the last in evaporation being prevented by an effectual covering or bandage of dry linen, and in the water being more thoroughly wrung out. These are not changed till they begin to be dry. This fomentation is universally applied in all local chronic diseases, all wounds, injuries, and ulcers; in disorders of the liver, stomach, bowels, heart, lungs, and ganglionic nervous centres

—in short, to any painful spot, or seat of irritation—to some eruptions and boils, and to gouty and rheumatic joints.

The abdominal fomentation or bandage is almost of universal application. This consists of a towel of about three yards long, and from half a foot to a foot wide. One-third of it wetted and well wrung out is wound round the abdomen and back, and covered by the dry part drawn as tightly as can be conveniently borne : for otherwise it would permit evaporation, and produce chill. It is to be renewed whenever it becomes dry ; and is usually to be worn by night as well as by day. If the back should remain chilly, the front part only of the bandage is to be wetted ; and exercise should be used after it. This fomentation is of great utility in all derangements of the abdominal and pelvic viscera ; facilitating remarkably the functions of the stomach and bowels ; allaying morbid sensibility and inflammatory irritation in its several tissues ; relieving constipation on the one hand, and diarrhœa on the other. Patients subject to sore throats, or to pulmonary affections, wear constantly the heating bandages round the throat, and over the chest.

THE SWEATING PROCESS.

This is the most abused of all the water-cure measures, and requires for its due administration more practical acumen, and pathological knowledge, than any of the other parts of the treatment. It is a powerful depletant, draining the system of its fluids ; and indiscriminately prescribed, or injudiciously prolonged, determining the worst evils. Priessnitz's eyes are now, however, happily opened to the danger of the indiscriminate and excessive sweating ; and its place in nine cases in ten, perhaps, is now supplied by the safer and simpler application of the wet sheet. May his followers—especially the unprofessional ones—imitate his salutary example ! as their practice must chiefly contribute to propagate the bane of his errors.

Fully to decarbonise the blood—to purify it from the poisonous properties acquired in its returning circuit—the *equilibrium* of the circulation and respiration is necessary. The want of the due relative proportion between the circulation and respiration—the more excited state of the former relatively to the latter, produces a greater afflux of blood into the lungs than can be fully oxygenated : hence streams of this fluid, greater or less, unchanged by the vivifying process, and charged with

their noxious ingredients, must again go the round of the system, to the manifest detriment of the more delicate functions.

A large, coarse blanket is spread upon a mattress;—the patient lies down upon it, as in the wet sheet, and is closely packed from neck to toe, and covered with a number of other blankets, preferably with a feather bed: the amount of covering being regulated by the difficulty of perspiration: to any diseased part a wet compress is applied; and it is generally requisite to enclose a urinal in its proper place. If there be headache or fulness of the vessels of the head, the wet (evaporating) compress must be kept on it.

This operation is generally performed the first thing in the morning, so early as four o'clock; or if the sweating is with difficulty produced, an after period of the day, when the patient is warmed by exercise, is selected. When perspiration breaks out (which is sometimes, especially at first, several hours after the packing,) it is allowed to continue a longer or shorter time, according to the necessities of the treatment, and the *tolerance* of the constitution; during this time the window is opened to admit fresh air, and the patient is supplied with a small glass of cold water every quarter of an hour. The active exercise of the limbs in the blanket, sometimes recommended to promote perspiration, is, on the grounds above stated, dangerous counsel, as it is bad practice. Having duly (and too often, *unduly*) sweated, the patient is unpacked, and steps into a shallow bath, preferably a plunge-bath, if at hand, containing tepid or cold water. If the shallow bath be used, the water should not be above a foot deep, and he should be thoroughly rubbed from two to ten minutes by an attendant, and have a few buckets of cold water poured over him. After a little practice, the cold plunge-bath is preferred as possessing more tonic power; or two baths are used, one cold, the other having the chill taken off; the patient transferring himself from one to the other. In all cases, as a general rule, the patient washes the face, head, and chest just before immersion.

This transition from copious perspiration to cold water is not only perfectly innocuous, but highly salutary. A powerful reaction, and a high degree of exhilaration and vigor are the result. Active exercise should then be taken, if possible, and the prescribed quantity of water drunk before breakfast.

In this process, there is a powerful revulsion of the fluids of the body from the centre to the surface. Hence there must be a general elimination of morbid elements by the skin. This is manifested in the change of the nature of the perspiration

as the process is persevered in: from clear aqueous and devoid of smell, it becomes colored, viscid, glutinous, fetid, &c. The odor, and sometimes the *color* of medicines, in the sweat of those who have "drugged" much, is very remarkable. The urine also alters in like manner; even the breath and open sores come to partake of the same fetor. These morbid phenomena *appear* to be *critical*, and are hailed as tokens of convalescence. They are generally intense in proportion to the powers of reaction; and the reaction is, *cæteris paribus*, in proportion to the suddenness and intensity of the stimulation produced by the change from heat to cold.

In persons of full habit, of inflammatory diathesis, or laboring under pulmonary congestions; in cases characterised by much nervous debility; in fevers, catarrhs, &c., the sweating blanket is bad practice, and should give place to the wet sheet.

The blanket perspiration—in cases where it is *tolerated* and indicated, as in gouty and rheumatic subjects, and in cold, sluggish, and phlegmatic temperaments—is a much more favorable preparative for the cold bath, than the sweat produced by *heat from without*, as in the vapor bath. The chief noxious effect in this case is from so much heated air being inhaled by the lungs, and consequently not only irritating the lungs by its heat, but robbing them of their due supply of oxygen by diluting it. The cool air inhaled by the lungs in the sweating blanket, and the cool liquid taken into the stomach, make an essential difference in favor of the latter process.

THE DRINKING OF WATER.

The advantages of drinking water are not modern notoriety, though abundantly more common since Temperance Societies have laid the axe to the root of the tree of the most prolific moral and physical evils. The health and strength, the hearty appetite, the vigorous digestion, the unclouded mind, and the unfailing spirits of water drinkers, have always been remarked. There is no constitution, age, sex, or season, wherein pure water disagrees. It allays thirst better than any other drink. It cools the stomach, soothes irritation, and astringes relaxation of its mucous lining; it mixes with the alimentary masses it meets there, it softens, penetrates, breaks up and dilutes the too solid parts; thus at once facilitating their passage along the intestinal tube, and affording a medium in which to present

more extensively the nutritious particles of the food to the absorbent mouths of the lacteals.

Taken in larger quantity and beyond these ends, pure water is rapidly absorbed from the surface of the stomach, and is carried with the blood and mixes with it, through the entire rounds of the circulation, penetrating to every part of the body, permeating every tissue: it dissolves and abstracts in its course morbid elements of effètē materials, affording both the requisite condition to give effect to chemical combinations, and the medium of their elimination in new shapes from the system—literally *washing out* all its surfaces and canals—*scouring off* the accumulating animal debris, or the excess of materials introduced into the economy over and above its nominal wants. That this powerful *draining* of the system, and evacuation of morbid elements, or effete materials, is a result of the copious dilution of the fluids with water, is manifest; because the blood-vessels can only contain a determinate quantity of fluid, and the essential constitution of the blood, as regards the relative proportion of water, remains nearly uniform. What is in excess therefore continually passes off by the two chief emunctories of the fluids, the kidneys and the skin, and is always more or less highly charged with impurities. Any undue tenacity or consistency of the blood is thus diminished, and the exit of any effètē or noxious elements capable of being dissolved or diluted by it, is facilitated.

In this way the humors of the body are clarified—the blood purified. The process has only to be repeated sufficiently often, and continued sufficiently long, to evacuate anything acid, acrid, irritating, or effètē; and without the forced, unnatural, and exhausting efforts of the organism which drugs induce.

Oxygen is co-important with food to the continuance of life: if the place of preeminence is to be assigned to either, it is to oxygen. Water drunk in considerable quantities unquestionably affords oxygen for the purposes of the economy: it is thus supplementary to the function of the lungs. Water is not devoid of nutriment, as some assert. The water-drinker who attempts his long morning walks without drinking, will soon be convinced of this.

To the beneficial effects of free water-drinking, active exercise is essential; otherwise the excess of fluid introduced into the system, does not pass off freely by the kidneys or the skin, and oppression of the stomach and a temporary plethora of the circulation are the results. When the kidneys and skin act freely, there is no *gène*, oppression, or repugnance of the

stomach to it. The activity of the skin and kidneys, and the amount of exercise taken, must be the measure of the quantity of water to be drunk. There is no absolute rule on the subject. Some inconvenience may be experienced at first by certain persons ; the taking of it, however, must be persevered in. It is understood that the water be unexceptionable in quality ; the less foreign ingredients it contains the better : the fresher from the fountain, the cooler, and more sparkling—the more carbonic acid it contains, the better. The cardinal rule for all persons must be to drink as much and as frequently as possible, short of producing a disagreeable distension of the stomach ; the largest part of the daily average to be taken before breakfast. Active exercise must always be taken during the drinking. If active exercise cannot be taken, and if the body be chilly, much water is inadmissible : large draughts of cold water too much rob the system of animal heat in these circumstances, and produce disagreeable oppression of the stomach, determining constriction of the interior vessels and congestion of the tissues.

Between breakfast and dinner, when active exercise is to be again resumed, is the second time for the free drinking of water. It is to be drunk very moderately at meals, and for two hours after, especially if the patient's digestive powers are weak or have been deranged. In the afternoon and evening walk, the patient to complete his prescribed dose, or to drink according to the amount and duration of the exercise taken.

Great excess is committed by the patients at Gräfenburg, and some other water establishments, in the drinking of water. From twelve to twenty-four half-pint tumblers of water should be the minimum and maximum doses ; and are enough, or more than enough, to accomplish any salutary purpose in the economy. The diluent effect of such an amount of water, conjoined with active exercise, may be readily conceived—washing out crudities from the stomach and alimentary canal, attenuating and eliminating morbid secretions, dissolving accumulations, and lending the aid of its oxygen to carry on the work of decomposition, and facilitating the reconsposition of the tissues. Its mere bulk will often provoke the peristaltic movement of the bowels. It powerfully assists in the dilution and passage of the heavy meals which the patient's improved appetite and digestion call for and dispose of. No wine, spirits, or ale, are half so potent a promoter of the vermicular motions or "peristaltic persuader," nor produce so brisk animal spirits. The convivial hilarity of water-drinkers is remarkable.

LAVEMENTS AND INJECTIONS.

Lavements and injections of cold water are staple articles of water-cure treatment. The former thoroughly remedy constipation ; and afford relief in certain cases of diarrhoea. Their use for the former purpose may safely be left to the discretion of the patient : or at least should be a standing order ; if the other processes of the cure fail to produce a daily evacuation. A large quantity, as two pints, taken to produce distention of the colon, and then immediately rendered, will generally operate more effectually than a small quantity, which is apt to be retained and absorbed, and fail of its effect ; a second lavement may sometimes be necessary fully to relieve the bowels. The best time for its use is immediately after breakfast. This is its use as an ordinary measure of hygiene. In the treatment of disease it is a great subsidiary aid ; but its administration must be under professional direction.

Cold injections into the urethra and vagina are of indispensable necessity in *all* chronic or acute mucous or muco-purulent discharges of these passages. For leucorrhœa and uterine catarrh, the most effectual restoration of the relaxed mucous lining, when the *fountain of the issue* has been dried up (which ordinary water remedies will fail to do,) is the introduction of a small tube (speculum) into the passage, and retained while the patient takes the cold hip-bath. This instrument is four inches long, and of various calibres, from half an inch to two inches in diameter, made of a sheet of zinc wire-work. This allows the water to come in contact with the walls of the passage. Its introduction is not painful ; and its salutary results inconceivable by those who have not used it. In painful uterine affections, in dysmenorrhœa, cancer, euralgia (the irritable uterus of Gooch,) used in the tepid hip-bath, it is an unfailing resource. In passive uterine hæmorrhage it is a *specific* ; but the soundest knowledge and discretion must dictate its use in such cases.

A forthcoming new edition of a work on "The Pathology and Treatment of the Functional Disorders and Organic Alterations of the Uterus and its Appendages," will be devoted almost exclusively to develope the application of the water-cure processes to the treatment of an entire class of diseases—diseases that more than any other inflict unmeasured, untold, and unsuspected suffering on the most interesting portion of the species.

PART IV.

PRINCIPLES OF HYGEIENE—PRECEPTS FOR THE PROMOTION OF
HEALTH, AND THE ATTAINMENT OF LONGEVITY.

To cure diseases, or to alleviate those that are incurable, is not the sole function of the physician. The task of teaching how to confirm and preserve health, amid the multitudinous influences at work in society to impair or destroy it, is, perhaps, a more important part of his mission : inasmuch as the prevention of evil is better than its removal. To point out the conditions on which the health of individuals and communities depends ; to reveal the errors of conduct in infancy, childhood, youth, manhood, and maturity, which destroy the constitutions and blight the prospects of countless myriads, is an extension of his field of usefulness, which more dignifies the physician, and more exalts his art, than the fruitless search for nostrums, or the hap-hazard experimentation with drugs.

To ignorance of the human organism, and to the violation of its laws, may be attributed the ill health and unhappiness of every period of life—the diminution of its enjoyments, and the abbreviation of its term.

THE PRINCIPLES OF PHYSIOLOGY MUST DICTATE THE PRECEPTS OF HYGEIENE ; and the sanctions of PRACTICAL EXPERIENCE, in its turn, must be invoked to confirm the soundness of abstract precepts.

The conditions of health are subjected to the same general laws that both religion and philosophy unite to prove to be the *ordinary* principles of the Divine administration, alike in the departments of nature, providence, and redemption. Obedience to constituted laws or conditions is invariably connected with appropriate benefits : infringement of tenure is punished with forfeiture of privilege ; and just in the *degree* and of the *kind* of the condition violated. This is a generalization which neither the ingenuity of sophists nor the casuistry of bigots can shake : and alike glorifies the works, and vindicates the ways, of the CREATOR.

It may be safely affirmed that man entails his own disorders. A violation of the laws of his organism—of the conditions

necessary to the due play of all its functions—whether wittingly or unwittingly committed—is visited with the penalty of disease and premature death.

With bodily health, mental and moral health is intimately associated. Mind is dependent for its manifestations on the condition of the material organization with which it has pleased the ALMIGHTY to ally it in this life. Defective energy or structure of the one leads to faulty evolution of the other ; as an unstrung or injured musical instrument fails to elicit its due tones. Irritability of body disposes to irritability of mind, and both influence unfavorably the moral feelings. A fit of indigestion will often becloud and make irascible the serenest mind.

The habits and *modes* of artificial society—the love of luxury—the culture of the intellectual at the expense of the physical powers—the pursuit of wealth—the cares and reverses of trades and professions—the moral excitement of public controversy in politics, religion and literature—the unbounded play of the passions, love, hatred, jealousy, anger, sorrow, hope, and fear—the excess of meats and drinks of a stimulating nature—the addiction to drugging—the vitiated air of towns and manufactories—are all so many sources of acute and chronic maladies that abridge and embitter existence, because they involve departures from the conditions of health.

This state of things cannot be done away with, although the evils deplored might be greatly mitigated by the diffusion of proper *head* knowledge, as well as by the obtainment of sound *heart* principles. The subjugation of our appetites and senses is a moral triumph that will lay the foundation of physical as well as intellectual strength. Courage is requisite to forego accustomed gratifications, and to brave the reproach of singularity ; but the benefits of abandonment will soon repay the pains of self-denial, and a temporary discomfort will be the purchase of a permanent blessing. To simplify our habits and limit our wants, will be found the surest way to diminish our cares and to increase our comforts. Yet we must not be misconstrued as countenancing austerity or asceticism, much less as insisting on it as a requisite. The food would then absorb greater care than the body, and the raiment than the life ; and health would bring with it as great privations or punishment as disease.

Health and longevity are within the reach of almost every individual—at least of those possessed of average soundness of organism—if he will but study and enforce the means and conditions thereto, established by the Divine Architect of our

frames. That three-fourths at least of human beings should die in childhood, and a moiety of the rest in early adult life, was surely never an ordinance of the Creator ; although the individual losses are often wondered at, and classed by a piety more sincere than enlightened, as instances of the mysterious designs of Providence !

The well-being of man comprises his physical, moral, and intellectual condition. To discuss the two latter branches belongs to other professions. We proceed to lay down the general principles and precepts that are to regulate the former. Modifications of these may be necessary according to individual cases and constitutions ; for no general rule can comprise all particularities. The great requisite for those anxious to regain and perpetuate health, is courage to commence, and perseverance to continue in, a right course. The love of life will supply the one ; returning health will stimulate the other.

DIET.

What is the most feasible theory of the phenomena of digestion ? Fermentation, in the light which Liebig's admirable researches have thrown upon it. The vermicular movements of the stomach are a mere mechanical help.

It is a law in Dynamics that a body or atom put in motion by any power will propagate its motion to bodies or atoms in contact with it, unless the resistance opposing the motion, as vital principle, chemical affinity, electricity, cohesion, &c., is sufficient to arrest the motion imparted.

The alterations in the forms and properties of bodies which occur in chemical combinations are referable to this law—*to* the state of motion or transposition into which are thrown the atoms or ultimate elements of bodies : in this way all the molecules in contact or within the sphere of the change, arrange themselves into new forms or groups, and entirely alter the nature of the product. This is the principle of fermentation. All organic substances, as soon as they pass into a state of decomposition, determine these molecular changes, that is, fermentation ; the precise products of fermentation alter with the temperature, and with the *stage* of their transformation. At a certain stage they possess the power of breaking up and dissolving various alimentary substances.

Animal membranes—the mucous membrane of the stomach—in certain conditions possess the power of producing these changes—of dissolving solid animal matters. The gastric

juice owes its solvent power to the Hydrochloric acid it contains: combining with the decomposed outward layer of the stomachal mucous, it forms a fluid that essentially corrodes, eats away, and liquifies the aliments. A very weak solution of this acid in warm water, with the addition of a small portion of calf's stomach, forms a mixture like gastric juice—an artificial digestive fluid, which has the same solvent power over aliments *out* of the stomach (exposed to its action for a few hours at 96° of heat), that the other has over aliments *in* the stomach. If we were inclined to recommend any medicinal resource to invigorate weak digestive powers, it would be most assuredly this very simple and efficacious digestive fluid. If it will dissolve fibrine or coagulated albumen *out* of the stomach *a fortiori*, it must dissolve them *in* the stomach.

I. The improper management of diet is the source of many diseases, and the bar to many cures. The errors of diet are more frequent on the score of quantity than quality, and in respect to the circumstances under which it is taken. The instincts of nature in man's present artificial state are blind and perverted guides. Appetites are sophisticated; and the natural relations between the senses and the objects that impress them, are destroyed or vitiated. Experience must now supply the defects of instinct, and science must dictate the principles of dietetics.

II. The object of aliment being to repair the waste of our tissues, and to afford the materials of their re-composition, its *relative* quantity and quality must have reference to the relative waste of the several periods of life. The *absolute* amount of food necessary is regulated by the absolute waste from the efforts exacted of the system—the power of the stomach, and the craving or demand it sets up.

III. The vigor of the digestive function is, *cæteris paribus*, in proportion to the vital energies of the individual, the size of its organs, and the degree of labor habitually imposed upon them.

IV. The food that is most conducive to health must be partaken of with moderation, and at regular intervals; leaving after it an agreeable repletion, without sense of fulness, load, oppression, or fatigue, and the bodily and mental energies equally recruited.

V. The cardinal rule for weak or dyspeptic subjects to avoid overloading the stomach, is to eat slowly, to masticate thoroughly, and to attend carefully to the *first* feeling of satiety—the first intimation of repletion. The relish given by the appetite then ceases; and every mouthful after this accumulates mate-

rials more than the stomach can master, and which will oppress and annoy for hours, incapacitate for the due digestion of the next meal, and probably disorder the system of the susceptible for days.

VI. The habit of immoderate eating develops the powers of the stomach at the expense of the activity of the brain, the senses, and the muscles.

VII. The general sympathy of the organism, which associates the weal or woe of one part with that of every other, finds a centre, so to speak, in the stomach. It supplies the part of an *index* for the others to intimate their want of nutritive materials.

VIII. Most persons eat more than is requisite or good for health. The stomach and the humors of the body are equally surcharged—the supply far exceeds the waste: elements accumulate in the system which should be eliminated: unhealthy plethora ensues. The faculties of the mind are blunted, and the seeds of innumerable diseases are sowed.

IX. Once for all, let it be premised that in all that concerns diet and regimen there is no absolute rule for individual guidance. It is impossible to lay down *general rules* that will apply to every particular case. The part of the physician is to establish *general principles*, from which particular rules must be deduced for special cases. The attempt to mete out diet by weights and scales, or to erect a universal standard of quantity or quality, would be as ridiculous as to promulgate an invariable size of hat, or a fixed shape of coat cut out on mathematical principles.

X. UNIFORM REGULARITY IN THE TIMES OF TAKING FOOD is as important as its quality or quantity. Due attention to these points is an indispensable condition of the recovery of health in the valetudinarian, and of its maintenance in the strong.

XI. All complicated combinations of food are to be avoided: as at once unwholesome in themselves, a sophistication of the palate, and a temptation to excess.

XII. As the appetite is regulated by habit, with stated hours the desire for refreshment, and the proper appropriation of it, will return: the MEAL-TIMES—their periods and frequency—are, therefore, all-important. Protracted fasting as well as too frequent eating are equally injurious. The meal-hours of the water-cure system cannot be improved: rigidly carried out, they will be found the most suitable for health, and probably the most convenient either for business-intervals or household-arrangements, of any other hours. It avoids an unduly sub-

stantial meal at one time of the day more than another ; and prevents the oppression and inertia produced by a heavy meal when the stomach is weakened after a long fast : as happens with those who starve all day, and take a late or large dinner or supper—a bad practice in every way. To prove how much the vigor of digestion is impaired by too long inactivity of the stomach, a person in good health has only to omit one of his meals : the subsequent repast, even of the usual quantity, will incommodate.

XIII. The appetite is never natural, nor the digestion perfect, till the contents of the last meal are passed out of the stomach, and the ulterior stage of digestion is accomplished. If this subsequent process (chylification) is imperfect, or unfinished, *natural* hunger will not return, and the next meal, if indulged in, will over-load. This is the reason why, after a full meal of nutritious viands, or after an excess that oppresses, the appetite is slower to return—the disinclination or disrelish for the ensuing meal should be respected. If it be not respected, a double error and mischief are committed ; namely, first, the interruption of the assimilation of the last meal ; and, secondly, the arrest of the functions of the stomach taken at unawares and disadvantage—alike unprepared and indisposed for the labor so unseasonably imposed upon it. Priessnitz's hours of diet, and the intervening exercise they allow, are the best guarantee for the perfect assimilation of one meal before another is taken : and the assimilation is accomplished not too long before the next meal comes round, to produce faintness *before* or oppression *after* food.

XIV. The first part of the process of digestion, namely, its solution and trituration in the stomach—the reduction of the mass of the ingesta to a homogeneous pulp (chymification)—is facilitated by rest, partial or entire. It is advisable, therefore, to avoid especially any violent exercise for an hour or two *after* a meal.

XV. The fulness of the meal an individual may indulge in, is to be determined by the amount of previous exercise taken, the state of health, and the vigor of the digestive powers.

XVI. As a general rule, people, and especially delicate people, should never eat freely in a state of fatigue, or immediately after hard exercise. The nervous energy that has been diffused over the system and spent in muscular efforts must have time to accumulate and concentrate itself upon the stomach in order to proper digestion. Half an hour's or an

hour's rest should always precede a meal under these circumstances.

XVII. The interval between meals—when the stomach and duodenum have been relieved of their load, and the new chyle is entering the general circulation—is the best time to indulge in, and profit by, active exercise. Muscular energy is then at its maximum, and its free scope accelerates the last stage of digestion, and completes assimilation.

XVIII. The interval of the meals is the fittest time for the reception into the system of the water necessary to repair the waste of the fluids. The stomach having then in a great measure or altogether disposed of its load, is prepared to receive a few copious libations of cold water, to dilute what remains, to carry off superfluous matters, and to supply new materials for the functions of the kidneys and skin.

XIX. The allowance of liquids to meals is a much controverted point. The strong stomach may take them with impunity, or find them absolutely indispensable, especially if the contents of the meal are solid. In the weak, much fluid relatively will unduly distend the stomach, weaken its coats, and absorb the gastric juice: thus hindering the formation of the chymous pulp, both by impeding the vermicular movements, and by diluting the glandular secretions.

XX. BREAKFAST. To enjoy and digest well this meal, the individual should be abroad early (six o'clock at latest,) and spend two hours at least in active exercise; and should by copious libations of cold pure water, have repaired the waste of the fluids lost in perspiration and other excretions in the night-time—corrected the acrimony of the secretions, and the taint of the breath oft perceived in the morning—washed out his stomach—and rinsed out the circulating vessels, as well as attenuated their contents. After half an hour's repose, within doors, let him then breakfast, and he will do so to his heart's content, keeping always in view the prime axiom, "temperance in measure and simplicity in kind." The fewer luxurious gratifications indulged in the better for fulfilment of the prayer of Juvenal, and the desire of all wise men, "mens sana in corpore sano."

Such a commencement of the business of the day will "set up" any man in moderate health for the rest of it; enabling him with clearness of head, and steadiness of limb to go through any rounds of public or professional duty; and both to relish and digest his subsequent meals.

XXI. DINNER. An hour or two after mid-day is the most

natural time for dinner : being a sufficient interval between the morning and the evening meal, to admit of the assimilation of all the three without interfering with each other ; avoiding the extremes of frequent or too distant meals ; and lightening the hours of repose by the finished toil of digestion.

XXII. SUPPER. The afternoon repast of tea may well be replaced by a few draughts of cold water, which will better dilute the remains of dinner, and prepare the stomach for a substantial evening meal some hours before the time of rest draws on. Retiring to bed with a full stomach, is not wholesome. The exhaustion of the vital powers by the pursuits of the day, as well as by the ceaseless operation of the complicated machinery they subserve, demands this concluding supply to eke out the renovating powers of sleep.

XXIII. The stomach of man has greater power of accommodating itself to varieties of diet than that of any other animal. It has been a long-agitated question whether the lord of creation was designed to be a *carnivorous* or *gramenivorous* animal. This dispute can only be settled by an appeal to the structure of his digestive apparatus, which shews that he is neither exclusively, but *omnivorous* in his appetite and capabilities. He can equally dispose of animal or vegetable food in all its diversities and admixtures, or either the one or the other exclusively ; a due mixture of both, with a predominance of the latter, is found most conducive to health and strength. Climate, season, habit, age, exercise, individual peculiarities, decide the choice. An exclusive diet of fresh animal food by no means affords the same nourishment as an exclusive diet of vegetable food. The testimony of many travellers, and of the explorers of the arctic regions, confirms this fact. The Esquimaux are examples of the one kind of diet : the Hindoos of the other. There is no proportion between their physical powers. The predilection for these respective diets is in virtue of a law which adapts man's constitution to the climate he inhabits.

XXIV. Vegetable food is less easily assimilated, transformed into nourishment, than animal food. In poor subjects—poor of flesh—thin of blood—cold of constitution—in persons of weak digestive powers, subject to flatulence, acidity, pain of stomach and water-brash—in the leuco-phlegmatic, those of pale, puffy, and flabby fibre—in the inhabitants of damp marshy soils—in those enduring exhausting labors—in the residents of crowded alleys and ill-ventilated houses—in all these individuals, vegetable food, at least a predominance of it, is improper : it imposes

too much labor on the digestive organs to transform it into nutriment.

XXV. The plethoric, the sanguine, the bloated, and the inflammatory—those whose facility of making blood, superabundant humors, and high condition, keep them on the verge of fever, and dispose them to local sanguineous congestions, apoplexies, and pulmonary haemorrhage, must abstain from succulent animal food, and be content with meagre vegetable diet.

XXVI. A due admixture of the most nutritious animal and vegetable food, combined with graduated and sustained exercise—with simple water for drink—will bring the body into the highest physical *condition*. This constitutes the *art*, and produces the *results*, of training.

XXVII. Food should never be eaten in a highly concentrated form, that is, containing the nutritious elements, unencumbered with what, for want of a better name, we call *husk*. A certain *weight* and *bulk* of the aliments received into the stomach is a necessary condition to good digestion. Nature never produces nutriment in a concentrated state. The *grain* is combined with the *chaff* and the *straw*. The sugar, the acids, the mucilage, and the oil of fruits, is united with farinaceous, and fibrous principles—*husk*! Animals fed for some time on these highly concentrated forms of nourishment, become ill and die. Even horses fed on the unnatural and highly-condensed provender of oats and beans, are subject to various ailments. Let the hint suffice to trainers of horses! The dogs of Magendie's experiments, fed exclusively on sugar, olive-oil, gum, and butter, with distilled water, though well nourished for a time, all drooped and died under the diet.

The same principles apply to the diet of man. Food containing the nutritious principles too combined, without sufficient farina is unwholesome. There must be a due admixture of farina, bread, potatoes, or other less concentrated aliment.

XXVIII. The *nutritiveness* and *digestibility* of a substance are not synonymous or transferable terms, but denote very different principles. The latter is generally in the inverse proportion to the former. The one is dependant upon its chemical constitution, the other upon its mechanical cohesion. These qualities constitute the test and value of the different articles of diet.

The mechanical cohesion—the texture of alimentary substances, more than their chemical composition, influences their digestibility, and necessitates the ART OF COOKING. The *solvability* of substances must not be confounded with their *digesti-*

bility : pure gluten, mucilage, or oil, is very soluble but very indigestible. The firm or tenacious cohesion of the particles is a great obstacle to the digestion of certain kinds of food ; as also the want of a certain degree of cohesion. To destroy this when in excess, to impart it when a defect, to change the sapidity and the odor of substances, the processes of cookery are invoked.

XXIX. The nutritive principles of animal food are FIBRINE, GELATINE, ALBUMEN, FAT, and OSMAZOME.

Fibrine is the most nutritious ; it is the muscle of the animal. Hence mutton-chops and beef-steaks afford large nutriment. The blood also as abounding in fibrine is highly nutritious.

Gelatine is the next nutritive principle of animal food. It is the essential element of skin, membraneous tissues, tendon, and bone when its earthy part has been removed. Its use is therefore to build up these organic structures. It is the predominating principle in young animals. Alone, it is a poor nourishment, and requires the correction of high seasoning. It will, however, afford adequate support to plethoric and bilious persons who do not take much exercise ; but it is not sufficiently stimulant for leucophlegmatic habits.

Albumen (coagulated) and *Fat* are highly nutritive principles ; taken alone, they require considerable powers of stomach for their digestion. Articles of food in which albumen predominates, as eggs, oysters, shellfish, the blood and brain of animals, are easily digested and restorative—are suitable to persons of feeble digestion, to convalescents, to old men, to the studious and sedentary, to delicate women and children.

Osmazome is that which communicates the flavor of animal food : but it is the least abundant and the least nutritive principle.

XXX. The objects for which they are eaten, and the physical condition of the eater, must regulate the choice of viands. No sorts of food can be called *absolutely* wholesome or unwholesome : they are only relatively so.

XXXI. The more nutritious meats are more stimulating and heating, and more difficult of digestion, than the less nutritious.

XXXII. The due texture, density, or cohesion of animal food, is the condition indispensable to its easy digestion. If it be too compact, longer time and greater effort of the stomach are required to perfect solution or chymification. If it be too glutinous or gelatinous, an equal obstacle is presented to digestion. It presents a mass, though soluble, too viscid, sliding too easily from the churning movement of the stomach, too in-

timately mixed with the water it holds, and too devoid of pores to be easily penetrated or attacked by the caustic acid (hydro-chloric) of the gastric juice. Hence jellies, isinglass, &c. when either alone, as a dessert, or as an addition to enrich soups, overload the stomach and are bad for invalids. Hence young meats, as lamb and veal, which contain much albuminous matter, are viscid, glutinous, adherent, inseparable, and are harder of digestion than the old animals, mutton or beef.

The degree of firmness of texture most suitable for digestion varies with the power of the stomach, and the habits of the individual. Tender wedder-mutton of five years old may perhaps be considered as the type of that texture of fibre which best possesses the requisite consistence for easy digestibility. Beef requires stronger powers of digestion, but is more nutritious—is in fact the most highly nutritive of all animal food : its texture is firmer. The longer the period that intervenes between the death of the animal and the eating, the more tender and digestible it becomes : this is in virtue of the diminished cohesion of the fibres produced by spontaneous alteration or decomposition—incipient putrefaction : what the food gains in this respect, it most probably loses in nutritive power.

XXXIII. The flesh of young animals is less nutritive and more indigestible than that of old. It contains more gelatine and less fibrine. Wild animals are more nutritious than domesticated, inasmuch as they are possessed of more highly fibrinized tissues from their superior health, air, and exercise. Hence oxen accustomed to labor, and afterwards fattened, afford the best beef. Hence the flesh of hunted animals—animals accustomed to hardy exercise, is light and digestible. Hence the well-known inferiority of lean and spare flesh—obviously because that state indicates a want of *condition* in the animal. For the same reason the muscular flesh of a healthy, well-fed, and plump animal is superior.

Veal is only fit for making broth or soup, as containing a large portion of gelatine. In general, the withdrawal of the blood of an animal in the process of killing, robs the meat of its most nutritious parts. Fresh healthy pork is highly nutritious and wholesome, but in civic life is only fit for occasional use. Smoke-dried, salted, or highly-seasoned minced meat, as that stuffed into intestines, require strong powers of stomach. The flesh of the fowls ordinarily used at table is light and digestible. Goose, however, is an exception.

XXXIV. SOUPS consist of all the nutritious principles of meat, save fibrine, extracted by decoction. Part of the albumen

rises to the surface in the shape of froth, and is skimmed off. This kind of food is highly restorative, and exacts little labor of the digestive organs. When taken to excess, or preceding a copious meal of solid materials, it is apt to distend the stomach, and impede digestion. The kind of meat, and the concentration of the liquor, varies its nutritive and stimulant power. Beef affords the richest soup: then mutton. To convalescents the soup of white meats, as veal and fowl, is less stimulating. A decoction of beef or mutton, as a beverage, is far more restorative than wine, ale, or tea.

Broths.—These animal decoctions compounded with vegetables, as peas, barley, rice, potatoes, greens, cabbage, carrots, turnips, &c., are only fit for strong stomachs, and are perhaps only the diet of economy. Too frequently they distend the stomach, and unfit it to digest the more solid aliments that succeed.

XXXV. FISH contains less nourishment than the flesh of beasts or birds: nevertheless it is a highly important article of diet—light, nutritious, and unstimulating; not sufficiently used because of its expense in all inland places. The fresher it is eaten, and the simpler it is cooked, the better. It is a valuable diet for invalids. Its light texture makes it easily acted on by the stomach. It is peculiarly suitable for convalescents from exhausting diseases, when the digestive powers are as yet unable to convert stronger aliment into chyle. Fishes combine fibrine, gelatine, and albumen, almost in equal quantities. Fish of dark-colored and firm texture, as the salmon, eel, &c., are oily, heating, savory, and nutritious, but difficult of digestion. The whiter and more tender fish, in which gelatine and albumen predominate, as the whiting, sole, turbot, haddock, and cod, are easier of digestion according to the order in which they are named. The most wholesome condiments to fish are vinegar and salt.

XXXVI. *Shell-fish* is highly nutritious, but indigestible. Oysters are the least indigestible, but should never be swallowed without mastication; these aliments, eaten in excess, sometimes produce poisonous effects—often a cutaneous efflorescence. In hot seasons, and in those disposed to cutaneous diseases, shell-fish must be eaten with caution.

XXXVII. MILK is intermediate between animal and vegetable food: it is nature's exclusive diet for young animals till a certain age, because of its high amount of nutriment, and the little labor its assimilation imposes upon the digestive organs. It is wholesomest undecomposed, as it comes, and the sooner

it comes from the animal. Its constituent principles, cream, cheese, butter, whey, are *separately* less genial to the stomach. Toasted cheese and fried butter, the one for its viscosity, and the other for its empyreumatic oil, should be eschewed by weak stomachs and convalescents. Boiled milk is less nutritious : its albumen is separated, and brought to the surface in the form of a thin pellicle or scum.

Milk is the suitable and ought to be the exclusive diet of the infant for the first nine months, or year, of existence. It may advantageously at all ages constitute a principal part of the food of man, at least one-half of his morning and evening meal. Cream is too rich to be taken into the stomach in considerable quantities, but it confers a richness and delicacy on other subsidiary articles of diet.

XXXVIII. EGGS rank next to milk in their high degree of nutritiveness and digestibility, and for the same reasons, and with the same intention. Overboiled eggs, however, are very indigestible.

XXXIX. VEGETABLE FOOD.—Farinaceous grains and roots, as wheat, barley, rye, oats, rice, &c., contain the greatest amount of the most nutritious of all vegetable principles, STARCH, GLUTEN, and SUGAR—with phosphate of lime—the essential elements of the organized tissues.

XL. WHEATEN BREAD is preëminently “the staff of life,” as containing most of the most nutritious principle, *gluten*. The finest flour—highly dressed wheat—has a tendency to constipate the bowels. Less completely dressed—the husk less highly separated, or containing the whole substance of the grain—household or brown bread, combined with the white bread, or substituted for it, counteracts this effect.

XLI. BARLEY BREAD is less nutritious and less digestible than wheaten bread: it is too viscid; its gluten is too much in its separate state—not sufficiently combined with the other principles, to be easily acted on by the stomach.

XLII. RYE BREAD is highly nutritious: but it is apt to oppress the stomach, and to produce acidity and purging. A mixture of wheat and rye flour makes a wholesome bread, the one grain counteracting the obvious effects of the other.

XLIII. OATEN BREAD affords an ample nourishment; but it is heating, apt to create acidity, and requires strong powers of digestion. This constitutes the staple diet of the hardy Highlander, with milk, cheese, and fish. But it is his habits of life, his active exercise, his mountain air, more than his diet, that endows him with constitutional powers in point of toughness

and endurance far beyond those of his southern compatriot fed on "roast beef and plum-pudding."

Boiled oatmeal, with new milk, may be employed advantageously for the breakfast of healthy and active children.

XLIV. Bread should never be eaten new, or insufficiently baked. It is a suitable article to conjoin with rich and more concentrated aliment. Hence, probably, its abundant use at the French tables. Yet bread eaten in undue quantity, or alone, is oppressive to the stomach, especially to valetudinarians.

Bread is supposed to produce acidity in children. This can only be in very unhealthy stomachs, and in very over-doses. If it be well-baked, especially home-baked, sufficiently raised, light, porous, and spongy, and sufficiently stale, or toasted—given in moderate doses to children who have teeth, and with plenty of exercise between meals, it is perhaps the best food. The mucilaginous sloppy doses of rice, sago, arrowroot, &c., as ordinarily prepared by the bulk of nurses and mothers, are much more indigestible, and not near so nutritious. Ground rice unadulterated, or the entire grain *duly* boiled in water, with heated (but not boiled) new milk then added, is to be excepted; and according to our experience, forms the diet *par excellence* of prematurely-weaned children. The diet of infants will be afterwards discussed.

XLV. Wheaten flour, made into puddings of all sorts, pancakes, and pastries, are all digestible enough by strong stomachs, and may form a large part of the dinner of the robust; but are to be sedulously eschewed by dyspeptics and convalescents.

XLVI. RICE, after wheat, is the next staple article of diet. It is the principal nourishment of entire races of men; but it cannot be taken exclusively, or in large quantities, but by strong stomachs. It is little disposed to ascescency or fermentation.

XLVII. Arrowroot, sago, and tapioca, are in their place useful articles of food for children and sick persons.

XLVIII. POTATOES well-cooked and mealy, are wholesome, nutritious, and agreeable to almost every taste. Waxy and under-done potatoes are very indigestible—indeed, pass through the bowels of the weak unchanged.

XLIX. The esculent roots, as carrots, turnips, parsnips, onions, radishes, lettuce, water-cresses, are all flatulent and watery aliments; but are refreshing during the heat of summer, and are good qualifiers of solid animal food. The former owe

their nutritive properties to the sugar they contain ; the latter are pungent, acrid, stimulating, and good for condiments, &c. &c. The onion boiled, or in soup, is mucilaginous and nourishing. Water-cresses and lettuce are useful for their aromatic and anodyne properties. Greens, cabbage, cauliflowers, brocoli, spinach, boiled endive or succory, though containing little nutriment, when well-dressed, in warm weather, and combined with other articles of diet, are digestible, cooling, aperient, and adapted for irritable states of the mucous lining of the intestinal canal. They require the addition of salt, and perhaps other stimulant condiments, as pepper, mustard, &c. : error on the score of quantity or quality produces flatulence, distension, &c. Oil and vinegar are used with salads as tending to check their fermentation in the stomach, and to increase their digestibility. Cucumber is the most unwholesome of all raw vegetables.

L. FRUIT in its season may be safely indulged in by the strong according to their discretion, taste, appetite, or thirst. To the valetudinarian, if discreet in the timing and dose of the fruit he takes, it will be alike grateful and restorative. He must, however, be careful not to eat any quantity on a loaded stomach, as is too frequently done in the shape of dessert after dinner.

Farinaceous fruit, as the melon, is the least digestible ; so also are the common stone fruits. The peach and apricot, however, are as light and digestible as they are delicious. Cherries are less digestible. Apples and pears are next in point of digestibility. The small-seeded fruits, as grapes, strawberries, raspberries, gooseberries, cranberries, bilberries, redwortleberries, are the most wholesome.

Apples, when baked, afford an excellent nutriment. Dried fruits, from the amount of sugar they contain, are apt to become ascendant.

LI. SUGAR is highly nutritive, but it is not fit for exclusive use. It is best restricted as a condiment to other articles of diet—to fruit, farinaceous, and succulent vegetables—often in which "*la sauce vaut mieux que le poisson.*" It stimulates the secretion of the saliva. Sugar-plums and sweetmeats of every kind are injurious to the teeth of children.

LII. SALT is an essential article of diet in itself, and necessary to give savor to tasteless substances, to prevent decomposition, and to promote digestion. Total abstinence from salt for a time, engenders worms in the body, and all sorts of vermin without.

LIII. CONDIMENTS, and stimulating sauces, or seasonings, contain no nutritive materials, but are intended to stimulate the jaded powers of the stomach to forced and unnatural efforts. Spices, mustard, pepper, &c., are good in themselves, but of unfrequent necessity in temperate climates. The produce of the tropics, they are indispensable qualifiers of the vegetable diet that forms the staple food of their inhabitants.

Vin-gar in small quantities is a grateful condiment. It prevents raw vegetables from producing flatulence; to animal food it imparts tenderness—a looseness of cohesion that makes it more easily acted on by the juices and muscular motion of the stomach. On this principle, the addition of lemon-juice to rich soups, and of apple-sauce to pork, renders them more easily acted on by the stomach. Vinegar taken in excess to reduce fat, destroys the coats of the stomach—too heavy a mortgage for a boon more safely and cheaply obtained by other measures. Vinegar given to animals before death makes their flesh tender.

LV. *Tobacco*, in all forms, is to be classed in the prohibited list with spirits. Whether chewed, snuffed, or smoked, it is equally pernicious: chewed, it destroys the appetite, absorbs and vitiates the secretions of the stomach; snuffed, it blocks up the nostrils, and blunts the sensibility of their mucous lining; smoked, it taints the breath, parches the throat, and provokes thirst which the smoker seldom quenches with water. In every way it is a filthy habit, and a useless waste of money; equally an injury to its consumer, and an annoyance to those about him. It begets indolence and indifference, selfishness and slovenliness.

LVI. *OPIUM* is often used as a substitute for spirits, on account of the agreeable excitement it produces. The dose requires to be continually increased. The habit is even more destructive than that of drinking strong liquors. We have known it annihilate the finest talents, and produce sheer old age and death, but a few years beyond thirty!

LVII. *MODES OF COOKING*. Cooking has a very intimate connexion with health as well as with comfort. Many hurtful prejudices exist on this subject in society, and it deserves the attention of every one anxious to improve and preserve health—especially of mothers, and the heads of families.

ROASTING is perhaps the best form of cooking, as least dissipating the juices of the meat. The melting out of the fat, and the evaporation of the water, however, reduce meat one-third by roasting; but the hard superficial crust which forms, prevents

the abstraction of the nutritive matter: the albumen (oozed out in boiling) is coagulated. Roasted are more nutritious than boiled meats. The outer part is not fit for an invalid, as consisting chiefly of burnt fat and corrugated fibrine, the internal part is more delicate, juicy, nutritious, and light. Meat should be neither *over-done* nor *under-done*. If it be kept long, and tender, and not too raw, the latter, however, is preferable.

LVIII. BROILING is only a modification of roasting. The hard coating thus rapidly imparted to the meat, prevents the evaporation of its juices, and renders it peculiarly nutritious and tender.

LIX. BOILING robs the meat of its *gelatine*, and washes out the nutrient juices charged with osmazome: the fibrine, however, is left, but weakened in nutritive power according to the amount of boiling; but it is rendered softer, more pulpy and easy of digestion: the albumen is solidified. The extracts, therefore—their adaptation for soups and broths—constitute the value of this mode of cooking. These are economical but not wholesome aliments; the watery part is oppressive to weak stomachs. Boiling must not be too fast, nor too long; for when the albumen and gelatine predominate, as in young meats, the article prepared will be converted into a hard indigestible substance. Young meats, therefore, as lamb, veal, chicken, &c., are more digestible, as well as more nutritious, when roasted than when boiled.

STEWs are a modification of soups—a concentration of their extracted juices, by a kind of infusion or simmering, not boiling; their complicated and stimulating admixtures are their great evils. This process is the best adapted for the young viscid meats above named. On this account, beef, mutton, and chicken tea are more wholesome for invalids than their broths.

The due boiling of vegetables is a point of great importance to attend to. Overboiled potatoes are a dry insipid powder. Underboiled potatoes, greens, cabbage, carrots, turnips, are highly indigestible. Hard water for boiling best preserves the tender juices of meat: soft water best dissolves the hard fibres of vegetables. Mutton loses one-fifth of its weight in boiling: beef one-fourth.

LX. BAKING is an intermediate process between roasting and boiling, but not so good as either. Baking renders meat more sapid and tender, retaining its juices; but the oily parts, instead of oozing out, are burnt in, and rendered empyreumatic.

LXL FRYING is the least wholesome process, at least where

digestibility is the question. The boiling oil it introduces into the texture of the meat, makes it empyreumatic and liable to disagree : it soddens the meat besides.

DRINKS.

LXII. DRINK is as important to the economy as food ; and the craving for it is a more imperious impulse. It is necessary both to repair the waste of the fluids, to liquify the nutritive matters, and to dilute the chymous pulp in the stomach. It is questionable if much of it passes into the duodenum or bowels ; unless when a great over dose is taken : otherwise its usual route into the circulation is by direct absorption from the coats of the stomach. Nutritious liquids introduced into this organ have their aqueous parts thus absorbed—a route very different from that which the chyle takes to reach the circulation. The solid residue is then acted on by the juice and muscular motion of the stomach, and converted into chyme. This seems the indispensable condition of their digestion. Milk—nature's own liquid aliment—is thus acted on. When soups, tea, coffee, chocolate, malt and spirituous liquors are taken, the watery part is immediately absorbed, and the gelatine, albumen, fat, extractive matter, gum, resins, &c.—this solid residue, of whatever composed, undergoes the usual action of the stomach.

Water is the best beverage : the purer it is, the more free from extraneous ingredients, the better. Pure animal and vegetable infusions, as beef and chicken-tea, barley-water, toast-water, gruel, &c., are excellent nutritious drinks for invalids.

LXIII. Errors of drink have been amongst civilized society the most prolific source of its physical as well as its moral evils. Diseases that slaughter more than ever fell victims to sword, famine, and pestilence combined, acknowledge this origin. This can be made apparent to the simplest understanding. The sophisticated drinkers in question directly poison the springs of physical and mental health—the digestive apparatus and the brain ; charging the blood with a greater quantity of extraneous matters than can be easily eliminated, and forcing their separation within the economy in the shape of various morbid deposits. The lacteals take up but a small portion of the fluids received into the alimentary canal. The veins and lymphatics of the stomach and intestines absorb a much greater part. This is received into the general mass of the venous blood of the mesentery—the connecting membrane

of the bowels. All this blood has to pass through the liver—the largest gland in the body, and the most frequently and easily disordered. Hence the liver receives the first impression of noxious drinks, and retains it most permanently. Hence the indigestion and bilious attacks after a debauch; and the organic alterations of the stomach and liver consequent to long-continued irritation from the excessive use of ardent spirits, or fermented liquors. From its delicate organization, the brain is the next organ to receive and retain these morbid impressions. Intoxication, although beastly enough, is a mere transient result. Alcohol is easily detectable in the brain of those killed when drunk. Not only is the nervous connexion between the brain and stomach impaired by this means; but its mental and moral perceptions are equally blunted. The kidneys, as the eliminators of morbid or effete elements from the blood, are the next organs to feel and resent errors of diet and drinks—often producing the granular or mottled kidney.

LXIV. Alcoholic drinks, fermented liquors, as well as medicinal stimulants of all kinds, should only be had recourse to on extremely rare occasions, and under circumstances of great exhaustion, when life appears sinking. They can never be taken with impunity in a state of health. The nutritious ingredients in any, of even the best, of the liquors in question, are almost an infinitesimal element compared with the noxious principle they contain. The temporary stimulus of organic activity, and the transient exhilaration of animal feeling they produce, is mistaken for the acquisition of strength and nourishment. This fallacy has propagated a master-evil over many climes, and throughout many generations—entailing the ruin of countless myriads of the best and brightest, as well as the worst and dullest of the human species. We charitably hope that “the times of this ignorance God winked at.” But *in these days* to counsel alcoholic stimulants to feeble sucking mothers, and dyspeptic invalids, is inexcusable. They may indeed, temporarily counteract exhaustion, rouse torpid nervous energy, and flog up languid vascular action—producing a *glow* in the stomach, or a *draught* in the bosom; but they will fail to impart available nourishment. This factitious strength is soon succeeded by increased weakness, and a more imperious demand for a repetition of the stimulant. The mischief does not rest here. For the ordinary dose failing to produce its wonted effect, a deeper and a deeper draught becomes necessary, and at last merges into a *habit*—often an uncontrollable passion. In other cases, where the administration of wine or

spirits is *commonly* supposed to be justifiable—in persons exhausted by inordinate fatigue, it is better to allow the system to wait and want, till an interval of repose gives time for the stomach to resume its activity—to utter the voice, and to take upon itself the supply, of the organic demands.

LXV. The greatest and longest-continued efforts both of body and mind are those made on simple diet and unstimulating beverages.

LXVI. Even without going the length of palpable intoxication, the habitual indulgence in “strong drink” produces chronic inflammation of the stomach and duodenum, thickening of their mucous lining, infraction of the glandular orifices, and drying up of their secretions; organic changes of the liver, with obstruction of its bile-ducts; alteration of the kidneys. The heart, lungs, blood-vessels, brain, and nerves, become the seats of various disease—inducing apoplexy at the head, and gangrene at the extremities—shaking of the hand, and palsy of the leg—epilepsy, delirium tremens, and insanity—raving madness, suicidal despondency, or blank idiocy. It induces premature decay; and determines a habit of body that renders fatal the simplest accidents of wounds or fractures. It gives to its votary a greater susceptibility to the impressions of ordinary diseases; and makes him fall the first victim to epidemic visitations. It entails deformity, disease, and imbecility on posterity. It shatters the powers of the most gifted intellect: it blunts the senses; it perverts the conscience; it renders equally powerless to will or to do. It unfitst alike for the struggles or the successes of life—to bear its woe or its weal. It mars all present happiness, and blights all future prospects. It entails at once the loss of character, and the ruin of circumstances. It impels to every crime, and produces recklessness of its commission. It dissolves the ties of relationship, and extinguishes the claims of humanity. It stimulates to murders, robberies, incendiaries, and riots. It fills our prisons, hospitals, asylums, and work-houses. It has even swept from the face of the earth entire tribes of men. It perverts countless hordes of the grain nature had given for “the staff of life” to mortals, into a means of weakness, and an engine of death!

Such are the tendencies and effects of the indulgence in intoxicating liquors—such the *terminus* to which it inevitably leads its victim. Is there any guarantee against reaching this *terminus* by those who once set foot upon the fatal rails that lead to it? An habitual medicine or beverage of the above

nature, whose limits of moderation and excess cannot be defined, and where therefore transgression must be easy, is best not to be tampered with. The immediate, entire, and final cessation of its use is the only salvation for the weak, and the only security for the strong. To the veriest sot this abandonment is *safe*, and, if not beyond retrieve, will ensure the speedy return of health, of peace, and of prosperity.

LXVII. TEA.—Not the least of the advantages of tea is the having superseded in society the more noxious potations of fermented liquors, and spirits and water. Tea, at least black tea, of the best quality, does not deserve the hostility it has called forth from some writers. It refreshes the body, and exhilarates the spirits—keeping awake the senses, and giving activity to the intellect. Its nutritive power is chiefly or altogether attributable to the milk or cream and sugar with which it is combined. It never should be taken warm. To literary men, and students, not taking active exercise, its use could be ill substituted by milk. A marked indisposition for intellectual toil follows the use of the latter. With ample air and exercise, however, milk is much the fitter fluid for man to dilute and wash down his morning and evening meal.

LXVIII. GREEN TEA is a sedative, and calculated to allay the excitement of the brain from over-activity of its circulation ensuing on stimulating drinks, passions, or studies. In all other cases it is decidedly noxious; and especially so to nervous, weak, and irritable persons—disturbing both the stomach and the brain, and inducing wakefulness. The same remarks apply to the medicinal applications of black tea; but its effects are less immediate and less marked.

LXIX. COFFEE is more stimulant and more oppressive to the stomach than tea. It is apt to constipate the bowels, and produce acidity and flatulence. It contains a greater quantity of extractive and resinous matter. Its use as a promoter of digestion is very questionable, if it be not rather positively clogging and injurious; gratuitously absorbing the powers of the gastric juice at the expense of the solid ingesta; besides introducing into the system a great amount of highly carbonized materials only necessary in very low temperatures. Coffee should always be fresh roasted, and should be made by infusion. Boiling dissipates its aroma.

LXX. COCOA is lighter than CHOCOLATE, but not so nutritious. They are more substantial articles of diet than tea or coffee.

AIR.

LXXI. Variation in the qualities of the air we breathe is a fertile source of disease, and an efficacious means of cure. The atmosphere obeys the general law of the expansion of bodies by heat, and their contraction by cold. Hence the variations of atmospheric pressure. The due pressure of this fluid on the surface, equally with its reception into the lungs, is necessary to health. The heaviest column of air is that which raises the mercury in a barometer to 28 inches at the level of the sea. This affords the most condensed amount of oxygen the air is capable of, and the heaviest pressure on the superficies of the body—conditions favoring a free respiration, a quick recruiting of the arterial blood, rapid circulation, energetic movements, hearty appetite and vigorous digestion. The diminution of the weight of the atmosphere on moderately elevated localities is compensated by the greater purity and freer circulation of the air. When the atmospheric pressure is less than normal, as at great heights, or in certain circumstances of weather, the respiration becomes embarrassed, the pulse quickened, and general uneasiness is united to great debility. There is less of oxygen in a given quantity of air, and less pressure on the fluids of the surface. This effect is felt more or less every day by invalids when the mercury descends in the barometer. The liquids of the body tend to expand; the veins dilate and bulge upon the surface; and the least movement excites perspiration: bleeding from the lungs, and apoplexies, are remarked to be more frequent among those predisposed. These persons in this state of weather should avoid every obstacle to a free circulation, as tight dress, muscular exercise, and overloading of the stomach.

LXXII. The effects of a HOT AND DRY ATMOSPHERE are muscular weakness, copious perspirations, diminished secretion from the kidneys, frequent thirst, disinclination for animal food, and a relish for vegetables, acid fruits, and cooling drinks; weakened appetite and digestive powers; inaptitude for intellectual as well as bodily exertion; sleepiness during day, and sleeplessness at night. It induces cerebral affections; gastric, bilious, and intestinal diseases. It aggravates hysteria, epilepsy, hypochondriasis, and insanity. It is unsuitable for the lymphatic, the scrofulous, and the rheumatic; but adapted to dry and bilious temperaments.

LXXIII. A HOT AND HUMID ATMOSPHERE is still more un-

healthy and debilitating than the last. Respiration is more difficult. The energy of the nervous and muscular systems is depressed. This state of the air is the precise condition most favorable to the decomposition of animal and vegetable substances, and to the carrying off of putrescent emanations. Hence the prevalence under these circumstances of epidemic, intermittent, and typhoid fevers. It is uncongenial to the lymphatic temperament.

LXXIV. A COLD AND DRY AIR is preëminently healthy. An abundant oxygen is supplied to the lungs; muscular energy is augmented; the appetite is increased; digestion invigorated; perspiration is less; the urine more abundant. Its benefits depend on sufficient exercise being taken to make the organs react energetically. It is therefore uncongenial to those who cannot take active exercise, as persons debilitated by age or sickness, those of lymphatic temperament, and new-born infants. The interior congestions determined by cold inadequately resisted, predispose to inflammations, and haemorrhages.

LXXV. A COLD AND MOIST ATMOSPHERE is very unhealthful. It determines powerful abstraction of heat; repels perspiration; produces rheumatisms, inflammation of the mucous membranes of the lungs, and gastro-intestinal canal. The very strong and bilious are often benefited by this kind of weather.

SLEEP.

LXXVI. SLEEP is the most powerful restorative of the system. It renews the daily ebb of life, and arrests its rapid flow, recruiting the exhaustion produced by its drains, and toils, and tear and wear.

There is no invariable rule for all persons with respect to the amount of time to be spent in sleep. It is regulated by the age, constitution, and habits of the individual. During the entire period of the growth of the body more sleep, as more food, is required to repair the waste of the structures, and to restore their sensibility and irritability exhausted by the incessant activity of the waking period. Hence those who use much exertion sleep soundest. In the prime of life waste is not so great, and a less supply is necessary. In old age, when the waste of the vital powers is least of all, there is the smallest necessity for sleep. But the very extremes of life unite in sleeping away most of the time. Too little sleep relatively to

the activity of the body unduly exhausts the irritability of the system, inducing morbid susceptibility of the brain, leanness, nervousness, premature decrepitude, disease, and death. An inordinate time given to sleep, or spent in sloth, equally impairs the energies of mind and body; inducing dulness, sluggishness, unwieldiness, and corpulence. Eight hours for youths and six hours for adults is about an average term for sleep.

LXXVII. For sleep to be speedy and perfect, all cares, emotions, and thoughts should be laid aside with one's clothes; and every external excitement of the nerves, as by sounds, light, &c., withdrawn as far as possible. Nightcaps had far better be dispensed with, and people should accustom themselves to sleep with a part of a window open.

LXXVIII. Early rising and the habits it inculcates are highly conducive to health and longevity. Necessitating early retirement to rest, it induces regularity of hours and habits—withdraws from many temptations to baneful conviviality and excesses, and facilitates the advantageous employment of the early morning. It is improper to retire to rest for the night on a full meal; two or three hours after supper is the best time; the body rises lighter and more refreshed next morning.

LXXIX. During the middle of the hot days of summer, an hour's *nap* after dinner is often a necessary indulgence, especially to those engaged in laborious occupations, and cannot but be conducive to health. A few hours taken from the usual morning rest will be well replaced by an hour's sleep in the afternoon. This was the practice of John Hunter, and is the custom of the inhabitants of the south of Europe.

LXXX. A horse-hair mattress is in every way preferable to a feather-bed. Overload or deficiency of bed-clothes is equally to be avoided. During the day they should be taken off and left to air on the backs of chairs, &c., with the windows of the rooms thrown up, as is the usage in Italy.

LXXXI. LIGHT is an agent indispensable to health. Vegetable, as well as human, beings, deprived of its influence, are blanched. The former also are changed in their taste and other properties. The flesh of the latter is rendered soft, flabby, pasty, and sallow. The tissues are infiltrated with pale liquids; the blood abounds unduly in serum; the fibrine and coloring matter are in defect. This is observed in persons who work underground, in prisoners immured in dungeons, in the inhabitants of narrow dark streets and lanes, in the cretins of the deep-shaded Alpine valleys, and in the natives of the polar regions who are for half the year without the light of the

sun. Those, on the other hand, who are constantly exposed to the rays of the sun, or who go entirely naked, as the New Zealanders, the Mexicans, the Peruvians, the North American Indians, have thick, rough, freckled, deep-red tawny skins, florid blood, muscular bodies, perfect forms. These are the united results of constant *insolation* and exercise. The application of these facts to the physical education of youth must not be lost. Lymphatic, serofulous children cannot be too much in the open air. Too much exposure to the sun, however, especially of the naked head, produces headache, apoplexy, inflammation of the membranes of the brain, insanity, &c.

CLOTHING.

LXXXII. The FORM of dress has much to do with the preservation of health. A confined garment is an evil to be avoided. Tight cravats often produce much chronic derangement of the health, which is long and in vain "doctored" without knowledge of the cause : they produce congestion of the brain and apoplexy, besides various ailments ordinarily referred to the heart and digestive organs.

LXXXIII. Tight stays are a crying evil of modern society. The compression of the yielding parts of the chest, of the heart and blood vessels, hinders respiration ; preventing the full expansion of the lungs, and the free movements of the diaphragm, abdominal and intercostal muscles. It equally impedes digestion, displacing the liver and bowels, especially the colon. It produces tumors and other diseases of the mammary glands, and sometimes absorption of the bosom. It predisposes to tubercular depositions, to haemoptysis (spitting of blood,) consumption, palpitations, aneurisms, visceral alterations, ruptures, contortions of the spine, and haemorrhoids. The exposure of the upper part of the chest aggravates the disposition to chest affections ; inducing colds, coughs, sore throats, bronchitis, &c.

LXXXIV. Tight garters induce a varicose state of the veins of the legs and feet. Tight boots and gaiters interrupt the play of the muscles of the feet, and produce absorption of the calf of the leg. Tight shoes distort, by pinching the toes, and incapacitate for walking.

LXXXV. Too warm clothing is to be avoided, on the principle of allowing the internal resources to develop the heat, instead of overloading with dress to retain it. To infants warm clothing is indispensable, diminishing it by degrees as they advance into activity and strength. In old age, and in the feeble,

it is also requisite; but only by degrees as pressing necessity demands: increased clothing must only keep pace with the increased inability to generate animal heat.

LXXXVI. Water-proof raiment should not cover the body closely or entirely, or be worn for many hours together; but only as a temporary covering to other garments.

LXXXVII. Wet clothes should never be allowed to dry upon a person. The evaporation from the body thus effected, determines severe internal congestions, inflammations, colds, and fevers.

LXXXVIII. The person should be more protected by clothing during sleep, than when awake: in convalescence than in health; in those of lymphatic temperament, than in the sanguine, or the bilious.

LXXXIX. COTTON is by far the best material to wear next the skin. It is intermediate in conducting power between linen on the one hand, and woollen on the other. It does not favor the abstraction of heat so much as the former, nor does it promote its accumulation so much as the latter.

XC. The excessive and indiscriminate use in modern times of woollen and flannel garments, has not been without great inconvenience, if it has not sowed the seeds of much of the infirmities of society. The extra heat it permits to accumulate, and the ample perspiration it induces when free exercise is taken, has at once superseded exertion, and rendered it disagreeable; inducing in many individuals sedentary habits, and a too frequent recourse to fire-side heat, instead of active out-of-door employment. The factitious delicacy of skin it induces renders the surface doubly susceptible to atmospheric vicissitudes—especially the extremes of heat or cold—predisposing to catarrhs of all kinds, diarrhœa, leucorrhœa, rheumatism, &c. This is not all the evil. The premature use of flannel has deprived later years of a valuable source of counter-irritation, and necessitated as substitutes many painful topical applications. Flannel next the skin should not be had recourse to in youth without the most urgent necessity. It can only be tolerated in lymphatic subjects, and in cold and humid countries. In almost all cases, flannel may be left off with impunity after a very few days of the Water-Cure discipline.

XCI. SILK is a bad conductor of heat, and for the very delicate is probably the best material to wear next the skin, without imposing much additional weight of raiment. Wadded silk, as combining lightness and warmth, and worn as a jacket

next the inner garment, may well supersede almost any other kind of *cozy* clothing, if such must be worn by the feeble and chilly.

HINTS TO CONVALESCENTS, &c.

XCII. If these Hygeienic principles and precepts are of importance to attend to in health, they become doubly necessary in convalescence, which is neither health nor disease, but an intermediate state. Wasted energies are to be recruited; and the organs are to be prepared to encounter influences from which they have for a longer or shorter time been withdrawn—*influences of society, friends, visits, noise, light, cold, heat, meats, drinks, bodily labor, and mental toil.* The fear of relapse necessitates that here, as in many things else, we advance step by step.

XCIII. Intellectual toil or exertion is to be avoided by convalescents, unless only in so far as it is advisable to afford distraction, as is the case frequently with hypochondriacs. But as a general rule, its effects on the brain, and on associated organs, are too exciting, too disturbing, too apt to rekindle quenched irritations, and to produce relapses of departing diseases. It is a great advantage of watering places generally, of Gräfenberg, and other places of invalid resort, that the patient's affairs are left behind. The perfect calm of the passions is included in this advice. Moral emotions of an anxious or exciting character exercise a much more potent and baneful influence on the weak than on the strong.

XCIV. To invalids who cannot bear much walking, riding is of all exercises the most beneficial. It brings into play the greatest number of muscles, and yields to the body the strongest concussions. But if possible, horse exercise should always be alternated with a corresponding amount of walking. In this way it is preeminently useful in all nervous, hypochondriacal, and dyspeptic affections. In certain diseases of the heart and lungs, gentle riding is an invaluable resource.

XCV. As epidemic influences are found from time to time to prevail, it is well to be provided with the means of defence, and to know their conditions of attack. Everything that materially deranges the health may become the occasion or exciting cause of the prevalent complaint. When the constitution has been deteriorated by any means, especially by bad diet, by fatigue, by misery, by depressing passions and diseases, then it is most liable to be impressed with the noxious influences.

Hence the necessity of avoiding every debilitating indulgence, and of adopting every means of increasing vigor. "Catching cold," a fit of passion, a bout of drinking, an overdose of physic, an indigestion, a fright, a wound, anxiety, are named by writers, and familiar to observers, as occasional causes of individual attacks of reigning epidemics, cholera, yellow fever, typhus, plague, dysentery.

THE PHYSICAL MANAGEMENT OF THE YOUNG.

XCVI. The neglected or improper physical education of the young is a gigantic evil in modern society. The ill-health of subsequent life is ordinarily traceable to this source. A reference to the future man or woman must always regulate the training of the child. This has been neglected. Nature's laws have been violated, and the full penalty of transgression paid.

INFANCY.

XCVII. The mother's milk is the food expressly provided by nature for the first nine months, or year, of infancy. Extreme delicacy of constitution, actual disease, or defect of milk, alone justify the transferance to others of this otherwise unalienable maternal duty. A young and healthy wet-nurse is the best substitute: no other milk should be given in addition to the mother's or nurse's. Spoon-fed children require very great care to rear them, are generally puny and feeble, and but a small proportion of them survive.

XCVIII. The practice of *cramming* infants who suckle with thick gruel, panada, biscuit-powder, and other aliments of the sort, is highly baneful. The colic and crying these indigestible messes produce are often mistaken for *the calls of hunger*. The dose is repeated, and the measure of the evil is filled up. The foundation of dyspepsia for life is sometimes thus laid. Most if not all infantile diseases originate in errors of diet. The cure is not the exhibition of "soothing syrups," "Godfrey," or other poisons, but the withdrawal of the irritation. Vitiating secretions will correct themselves by *rest alone*. To administer drastic purgatives to infants, neither science nor humanity will *now* permit. If any where, Nature is *here* competent to her own work, and she should be left therefore to **her own resources**.

XCIX. A healthy infant should be weaned at nine months, but this should be done *gradually*: abrupt weaning is neither humane, politic, nor wholesome. After this the best food is the milk of a cow, with rice, sago, arrow-root, good home-made wheaten bread, very stale. If rice be used, the grain must first be well washed with warm water, to remove a substance which coats it. The rice is then to be boiled for half an hour in water with a little salt added. The water is then to be poured off, and the saucepan, with the lid on, left at the edge of the fire for half an hour longer. This does through and breaks up completely each grain of rice. The milk should be added merely heated. Milk should *never be boiled*. The boiling deprives it of one of its nutritive principles—albumen, which rises to the surface as a thick film. Very little sugar should be added to the food of infants, and then only at the moment of taking it. From sixteen or eighteen months upwards, a small quantity of tender juicy meat and gravy, without fat, nearly cold, and cut very small, may be occasionally given to children; increasing the quantity and frequency (but never more than once a day) as the child grows and strengthens. The inner part of roast mutton or beef is the best meat. Lamb, veal, chicken, pork, pastry, and cheese, are forbidden on grounds already stated. An excellent breakfast or dinner for this age is made of stale bread crumbled down, with an egg boiled for *one* or two minutes mixed through it, and cold milk drank with it.

Sweetmeats are bad for infants, as they disorder the bowels, and affect the mouth, teeth, and gums.

Enough has been said before to render repetitions about over-feeding unnecessary.

C. The new-born infant having but a feeble power of resisting cold, requires for the first two or three months of life to be warmly clad, and protected against atmospheric vicissitudes. But it must be accustomed by degrees to the air, till it can endure its alterations; and the amount of clothing must be gradually diminished. After two months, caps should be laid aside, and should never be again resumed by night or day, unless when taking an airing.

The form of dress as applied to infants requires the attentive study of every parent. The infant should possess at every period of its life a free and unrestrained movement of his limbs: no tight bandages or lacings; no compression of its throat by cap-strings, nor of its head by buckram bonnets, or of its shoulders and chest by tight-fitting shirts.

The clothing of children is much too complicated; and dressing is much too painful and tedious a process. The looser and simpler children's garments are made, and the more easily they can be put on and off, the better. Fastenings with tapes, loops, and buttons should entirely supersede the dangerous expedient of pins.

CI. New-born infants sleep almost constantly; and the more the better. They should lie in a cot by themselves after being suckled, and there should be no curtains about the bed. The clothing should be merely sufficient to keep them warm. They should not be muffled with flannel shawls, nor the face covered with handkerchiefs while sleeping.

CII. Infants should be washed all over night and morning. From a month old cold water will be used for this purpose with immense advantage; at least if the child be healthy. We do not advance in these precepts *untried theories*. The habit of cold ablution, night and morning, and daily exposure to the open air, will harden them against many little ailments, and make the process of dentition, always painful, at least safe. All soiled articles should be instantly removed; the skin cleansed with soap and water, thoroughly dried, and *powdered*.

CIII. After the first month, children should be much in the open air, if the weather permits.

CIV. The earlier after the first two months, and the more frequently for a short time together, an infant is laid upon its back on a bed or sofa, and allowed to *sprawl* and exercise its limbs, the stronger and more healthful it will become.

CV. Children should never be rocked in a cradle; as it sends them to sleep at the expense of congesting the brain. It is only an excuse for a lazy nurse, or a make-shift for a busy one.

CVI. *Hoisting* is equally pernicious to young infants, and should never be tolerated: 1. It is liable to the risk of accidents; 2. It produces vertigo; 3. It too forcibly compresses the chest in the act of grasping.

CVII. The infant is to be permitted to go on all fours as soon as he is inclined: this exercise will develope the muscles of almost the entire body; but he must not be placed on the foot too soon. Premature attempts to walk should rather be repressed than encouraged. The bones of children of this age are too much in the state of cartilage (gristle), and too deficient in phosphate of lime, to bear the weight of the body. They yield and bend: bandy-legs are the result. Under proper management, however, the distortion will correct itself as the child increases in strength and stature.

CVIII. Children should never be lifted up by an arm, as many nurses do. The *mode* of carrying in the arm is also of great consequence, so as not to deform the thigh-bone, which is a frequent recurrence with careless nurses.

CIX. The force of habit is as great with respect to the bodily functions as to the moral powers. The periodical necessity for food, sleep, alvine evacuation, &c., amounts to a law of the organism. Fixed hours for food, rest, motions, &c., are important habits to be established.

CX. Fretfulness and irritability are generally symptoms of ill-health, and should never be recklessly or lightly raised. The way to cure the irascible disposition of children is not to provoke it. Avoid the occasions of passion—divert the child otherwise when ill-tempers threaten, and they will die of their own inactivity: or evanish with the enervation of the system: while, if kept alive by repetitions, they will be roused into excessive development. The early enforcement and steady prosecution of strict mental and moral discipline is the foundation of all future excellence of character.

These principles of management apply, *mutatis mutandis*, to the guidance of the subsequent periods of childhood and youth.

CHILDHOOD.

CXI. Its diet must be proportioned to the strength and stature, the amount of exercise, and the vigor of the digestive powers. Excess of nourishment is far less baneful than defect. Insufficient diet, or a faulty digestion elaborating a depraved nourishment from a liberal diet, lays the foundation of scrofula, cachexia, the leucophlegmatic temperament, and the tubercular dia-thesis. Too much animal food, nor even excessive meals, no wise parent will give. In this way the stomach and bowels are overloaded, the elements of fever and inflammation are generated, and the foundation laid, if he escapes their attack, for a career of incorrigible gluttony. In a child of sound constitution, and robust health, with active habits, sprightly disposition, and buoyant spirits, the natural dictates of appetite may be consulted, and a mixed diet of animal and vegetable food given—always with a great preponderance of the latter. If symptoms of repletion or plethora ensue—if there be febrile irritation, furred tongue, irregular bowels—then let the supplies be cut off, and animal food for a time withdrawn. In tender and weakly children, less active exercise can be taken;

and the diet that nourished the former, would overload the latter. The food must therefore be proportioned to the constitution, habits, exercise, &c., of the little patient. As the frame acquires strength, the quality of the food must be enriched; a generous diet of animal food is necessary for rapid growth: the water-cure measures will invigorate the constitution so as to enable him to digest a sufficient nutriment, and shield him alike from the baneful consequences of dietetic errors, or accidental diseases.

CXII. Children should be constantly in the open air in fine weather, and their gambols freely encouraged, with sufficient intervals of rest. Long and fatiguing walks are objectionable.

CXIII. The shoes of children (as of all the others, did fashion not dictate otherwise,) should be made according to the shape of the foot—broader at the toes than elsewhere, large, of soft materials, of light and flexible sole. *Cotton* socks are better than worsted for healthy children. The latter is tormenting to their active sensitive skins, and unnecessary. Pale delicate lymphatic children with cold extremities, require both its salutary stimulus and heating power.

CXIV. When the distinctive dress of the sexes begins to be worn, let mothers avoid laced jackets or corsets for their girls, as sources of muscular weakness, and causes of spinal deformity. Stays are only a substitute for muscular action. To confer the requisite carriage, a continuance of muscular effort is necessary, which the strongest adult could not long sustain. The relaxation of muscles must alternate with their contraction. The failure of the desired end arising from this necessity is corrected by the expedient of a continuous laced support, which supersedes muscular effort. The irksomeness of this restraint is tolerated because of its aid, till habit reconciles to its use. Inactive muscles waste and become powerless: they cannot perform their function of support to the spinal column: the consequence is, when the artificial prop is withdrawn, the spine yields and bends to either side. *Curvature* is the result. The varied exercise and alternate repose of the muscles is the only rational way to their general invigoration, and the only safe mode of imparting a graceful carriage.

CXV. The habits of morning and evening cold bathing or ablutions must be continued as the surest promoters and conservators of health.

YOUTH.

CXVI. What is the source of the feeble constitution and delicate health of modern females? Most assuredly, neglected physical education! This is a matter of paramount importance, and should be clearly understood to be effectually corrected. It is at the critical epoch in question, that the effects of a beneficial or a baneful system of physical training are palpably evinced. Boys and girls now no longer resemble each other in their bodily health and strength. This delicacy of the female constitution is not inherent, but acquired. If males were subjected to the same influence as females, the same physical injury would follow. Fashion, a false mode of education, and faulty objects of accomplishment, impose upon the feebler sex restraints no longer compatible with the free gambols to which the stronger owes its robustness of health. It is from the time that a perverted taste makes it indecorous for girls to indulge in the exercises of boys, that the deterioration of the female constitution commences. Their body, moreover, has to be drilled, drawn, and tortured into conventional shapes and attitudes, equally opposed to the forms of nature and the functions of health. The slowness of the process of impairment, and the insidiousness of its ravages, usually mask the evil till detection comes too late, and remedy is unavailing.

CXVII. The mental education is as faulty as the physical. The faculties of the mind are equally repressed and enfeebled with the deterioration of the body. Frivolous pursuits, having little reference to the great destinies of woman, and acquired too often only to be forgotten or abandoned, absorb the best years of life, shut out the place of solid acquisition, and heap up materials of enduring ill-health. The better to perpetuate the loss it entails, this costly sacrifice at the shrine of fashion is made before the body has received its proper mould, or the organs their due consolidation. Its palliation is a legitimate but blind maternal zeal for the objects of the sex! its excuse—ignorance of the consequences!

CXVIII. Sound views of the animal economy as well as of the mental constitution, are necessary to correct the errors of public seminaries and of private families.

CXIX. The physical and mental powers are intimately connected, and essentially depend on each other. If the body is unduly wasted by labor, nervous energy is withdrawn from the intellect—the mind languishes: if the nervous energy is

unduly expended by prolonged mental exertion, it is withdrawn from the body—the body languishes : in either case, the equilibrium of health is destroyed—disease results. Defective exercise, or disorder, of the functions of a part, induces inactivity, waste, and feebleness of its structure. The brain is subject to this law : hence the necessity of a simultaneous and systematic exercise of all its powers that are worthy of culture, and the uniform quiescence of those that ought to be repressed. The common courses of education are calculated to exercise but a very few of the powers of mind.

Disorders of the digestive function are the roots of all other bodily ailments—perhaps of a great majority of mental maladies. An imperfect or vitiated chyle will afford an unwholesome nutrition. Abnormal or arrested secretions and excretions will be the result. The nervous system is next implicated in the chain of morbid action : the mainspring of the machine will thus get relaxed or unwound : and the *effect* will in its turn become a *cause*. All the functions will participate in the impairment of the nervous centres—the supply of nervous stimulus to all will be diminished or vitiated.

If one organ is unduly exercised, it absorbs a disproportionate amount of the nervous energy, and deprives the others of their own share : the tone of the robbed organs is diminished—their functions are weakened. Intense application of mind, for example, concentrates the nervous energy on the brain, at the expense of the trunk and extremities—proving how unfavorable diminished nervous influence is to the general health. Irregular, deficient, or inordinate exercise of the mental or bodily powers destroys the equilibrium that should be maintained between them, and induces weakness, suffering, disease.

CXX. Bodily energy is requisite for the proper culture of the mental faculties of youth. Education is not advanced according to the time devoted to it, nor to the earnestness of the application. Forced efforts at learning both injure the health and fail of their end. Varied mental and bodily effort—the alternation of labor and relaxation—pursuits calculated to develope the various faculties, and commensurate in importance with the destiny they prepare for—will alike conduce to vigor of body and energy of mind. The brain shares the benefit of improved health. The active exercise of the intellect and of the moral feelings becomes in its turn a necessary condition to the due performance of the functions of the nervous system.

CXXI. The education of the intellectual and moral powers

must go hand in hand. But as the perceptive faculties are developed before the reflective, the moral sentiments and affections must be first cultivated. If these be neglected, it will be in vain afterwards to address the *morale* through the intellect. The mere conviction of the judgment will never mend the heart. Here we are encroaching on the province of other teachers: and, keeping to the objects of our work, we must forego any detail as to the plan of intellectual education best fitted to develope all the powers of mind, according to the seasons of their maturity, and the career the individual is to be fitted for. We only remark, that classical learning might well be postponed for a few years; and the various branches of NATURAL SCIENCE, HISTORY, BIOGRAPHY, the LITERATURE, LAWS, and CONSTITUTION of one's country, with a severe course of MATHEMATICS, would expand the views, call forth all the powers of reflection, observation, and application—and make the subsequent acquaintance of the master writers of antiquity an easy acquisition, and a spirit-stirring employment.

PART V.

THE LEGITIMATE PROVINCE OF PHYSIC.—PROFESSION OF MEDICAL FAITH.—A DISSERTATION FOR THE FACULTY, AND ALL OTHERS WHOM IT MAY CONCERN.

IT now remains to pass in review, and offer a few comments on, THE GENERAL PRINCIPLES OF TREATMENT, in the diseases of most common occurrence—those for which the aid of medicine is most resorted to. This we shall do without any reference to formal order, or nosological arrangement; first discussing acute, then chronic maladies.

INFLAMMATIONS.

We enter not here on the question, how far the Faculty have been led away by a *mere name*—an “ignis fatuus” of their own minds;—how far a false theory and interpretation of the simplest morbid phenomenon—the mere *symptom* of the diminished action and incipient decomposition of a tissue, and which, when not *traumatic*, is a lesion consequent to a constitutional derangement;—we inquire not how far this error of theory has led to an error of practice as wasteful of human life as ever the sword has been. Our present object only concerns TREATMENT.

I. We shall first speak of inflammation of the SEROUS MEMBRANES, and of the PARENCHYMATOUS (solid) VISCERA of the skull, chest, and belly. Here copious bloodletting, generally to fainting, (if the patient be at all able to bear it), is the initiatory measure of treatment—“the anchor of hope”—the “unica salus” of the orthodox. Other evacuants are next called to the rescue of the patient; always purgatives and diaphoretics. More acute observers have learnt to supersede even all these by an emetic—certainly a more philosophic, safe, and successful practice, if it were only for its revulsive effects, in the *commencement* of disease. When the strength of the complaint (at all events the strength of the patient) has been broken by this assault of heavy artillery to appease the tumult of the or-

ganism thus excited, and to dislodge the enemy from his remotest and secretest lurking-places, calomel and opium are given to promote rapid salivation: invoking again, if the enemy be at all refractory, bleeding, *coup sur coup*, in the *heroic* manner of our excellent friend, M. Bouillaud: with leeches or cupping in due dose; blisters, dressed with mercurial ointment; and *dîète absolue*. This is pretty nearly the standard, and almost universal practice in modern times, in inflammation of the brain, and its membranes; of the heart and lungs, and their membranes; of the liver and uterus, and their coverings; and of the peritoneal coat of the stomach and intestines.

Such are the intentions of treatment—such are the orthodox modes of their fulfilment. That they answer their end depends very much on the discernment and tact of the physician—the *due* time and circumstances at and under which they are practised—and the *limits* that are maintained, the “*ultra citraque nequit consistere rectum.*” As it is, it is a question, how far the mortality is the result of the treatment rather than that of the disease. Those who fortunately (or unfortunately) escape death, often surviving to encounter a worse in the eternal malaise of a broken constitution—mutilated in a warfare, for which there is the recompense neither of pension nor glory.

A word on bloodletting. This is an unjustifiable measure in any case—a practice that receives no sanction from the lights either of recent chemistry, physiology, or pathology. Why this haste to draw blood, in inflammations and fevers? Is an undue quantity of blood the sum and substance of inflammation or fever? Will the abstraction of blood essentially change the proportion of the morbid constituents of the rest? The mere diminution of the quantity of blood in a part can never cure an inflammation—is the wrong way to correct the faulty qualities of the blood—is the way, in fact, to perpetuate them. The fluids are vitiated in quality, and the solids that move them are lowered in vitality. The true Science of Therapeutics can never sanction such an absurdity and cruelty as the measure in question.

II. In inflammation of the MUCOUS MEMBRANES, mercury and general bleeding are both contra-indicated—by good observers, at least avoided. Local bleeding is mainly depended on. This measure among the Broussaisists, is an enormous abuse. In inflammation of the lining of the air-tubes, antimony is considered as essential to success; if there be no gastric irritation to forbid its use.

Now, the indications of treatment being the same, can the

same ends be answered by the processes of the water-cure ? We reply, Yes ! more efficaciously, more promptly, and more safely.

1. The indication to subdue excessive vascular action, and to allay inordinate nervous irritation, is brought about with far less damage to the constitution, by the due use of wrung sheets, or by cold or tepid affusions,—both of which procedures can be so graduated, as in the course of a few hours to reduce the pulse (if need be) “to the smallest thread;” and to calm perfectly the most threatening nervous excitation—even maniacal violence. 2. Local excitement will be reduced by cold lotions or evaporating bandages to the head, chest or belly.* 3. The bowels will be got to operate perfectly by enemata of cold water ; aided, if requisite, by the cold dash over the abdomen. 4. Diaphoresis and diuresis will be excited by copious potations of cold water : the former may be kept up to any extent by the proper management of the wet-sheet fomentation. 5. Pain, or general uneasiness, tossing, irritability, and sleepiness, will be marvelously allayed by the same means. 6. Food will be withheld in the first onset ; then, as the vital powers rally, as the stomach becomes able to digest, and the patient inclined to eat, it will be given according to the necessities of the case, and the discretion of the practitioner.

The result of these measures will be—

I. *Effectually to cut short the most violent acute diseases in their first assault.*

II. *To render impossible the complications that confer upon them their fatality.*

III. *The perfect reestablishment of the patient's health, in a very few days ; often in a few hours.*

* Cold externally as a refrigerant, is almost universally had recourse to by practitioners in cases of inflammation of the brain and its membranes—organs considered the most delicate to deal with, and the most to resent any maltreatment. Why not employ its confessedly powerful aid in inflammations of other prime viscera, as the lungs, heart, stomach, intestines, bladder, and uterus ; and in haemorrhage from these organs ? The objection that by such means, the blood would congest or accumulate in internal parts, so as to aggravate the inflammation, is a mere theoretical dread. Cold water properly made to bear upon an inflamed organ diminishes the quantity of the circulating fluid in the part, as well as breaks the impetus of the blood going to the suffering organ. The *sedation* of the surface, and the constriction of the superficial vessels, operated by cold, extends to the deeper seated.

Lastly. To avoid the oft irrecoverable shock to the constitution, sustained by the large draughts on the “*pabulum vitae*”—the element of its strength and integrity; and to escape the damage accruing from the irritation of the organic tissues by the unnatural stimulus of drugs:—this double drain on the vital powers laying the foundation of perhaps one-half of chronic maladies.

FEVER.

FEVER is another of those abstract terms “embodying forth” an altered circulation or impaired composition of the blood. How far the received distinctions of fever indicate *essential* differences in its nature; or are mere modifications induced by variation in the grade of the primary nervous lesion, or in the seat of the subsequent visceral irritation;—it is not for us here to discuss. Our object only lies with treatment.

The proper management of a bad case of fever calls forth the best curative efforts of the physician; and because of its difficulties, is admitted to be the truest test of his genius. According to the course fevers usually run under ordinary drug-medication, there is requisite the skill, coolness, and courage of a general who has to conduct a retreat, with a powerful army pressing on the rear, and dispirited, and ill-provided, sometimes refractory, troops to convey through a wasted territory.

With the old tactics, the dangers to be avoided in the treatment of fevers (as the ordinary epidemic fevers of this country,) are—I. Too profuse antiphlogistic measures in the beginning: and II. A delay in the use of stimulants, in the latter stages, till the powers of life are sunk too low. It will be conceded by every experienced practitioner, that in fever, as in childbirth, we should never do more than is necessary: a *meddlesome* practice is not more injurious in the one case than in the other. The strength is to be husbanded, in order to give the fairest chance for the triumph of the constitutional powers, in the struggle that is to follow—and to get the patient through the collapse and the complications that constitute the difficulties of treatment, and become the causes of death. A prying look-out for, and early attack, of complications, is the most anxious duty of the practitioner, as on the result hinges failure or success. Cleanliness, coolness, and free ventilation, are indispensable under any treatment.

So far, there is very little disagreement among physicians. The matters of controversy are the best modes of accomplish-

ing these ends. The amount and kind of depletion, by which *alone*, in the doctrine of the schools, fever could be cut short, in its first assault ; or failing that, its intercurrent complications removed,—have been the subject of as acrid and endless a warfare, as the dispute as to its *essential* or *symptomatic* nature. The *due* reduction, by whatever means, of the excitement that distinguishes the first stage of common fevers ; and the *due* administration of stimulants (as to *time* and *quantity*) in the depression that marks the after-stages—have been hitherto the nicest problems to solve in the whole circle of practical medicine. To Dr. Graves is due the credit of having established valid indications (as to *time*) for the safe employment of the latter. The former point, it is hoped, will now be alike decisively settled.

Local bleeding, for the *complications* of fever, has been agreed upon by most modern pathologists. General bleeding has received, and very properly, fewer partizans. It is a canon admitted by all, that the phlegmasiæ complicating low types of fever cannot be treated so actively as when not so combined : and on the principle of sparing the constitutional powers for the subsequent struggle. Dr. Billing and M. Bouillaud, however, do not recognize this exclusion of active treatment. They contend that the depression and debility characterizing low (typhoid) fevers, do not prove a deficiency of blood, or an inability to bear its abstraction ; but a deterioration of its quality, and local congestions of vital structures. Bleeding, they assert, takes off this inward load ; and relieves the laboring circulation—making it fuller and less frequent. This reasoning is just as regards the pathological state, and the *primary* effect of bleeding. But the remedy is as fatal as the disease : and must be so. Many patients indeed recover—escape : but few regain their former health. The majority of physicians, however, with Drs. Stokes, Graves, Elliston, Bright, and Addison, at their head, inculcate much more reserve in the use of venesection in such cases.

Excessive purgation in fever is a crying abuse, and is almost an article of British medical faith since the publication of Dr. Hamilton's well-known work ; always excepting the Dublin medical school. Conceive the irritation, even on a healthy stomach, liver, and bowels, of large doses of calomel and jalap, salts and senna, ipecacuanha and aloes, castor oil and rhubarb : with "adjuvantia" of opium and hyoscyamus, musk and antimony, nitre and digitalis.

The plan of Dr. Currie has been unmeritedly neglected.

His cold affusion in fevers was never attacked, for it could not be controverted. In any other age than that of budding pathological theories, it would have found a large school of partizans. The absorption in another line of studies, of the minds that could have given a lead to the practice, or established it in fashion, and the apathy of the rest, led the profession to countenance, rather than confront the popular prejudices against it. The FATHER OF PHYSIC appreciated the effects of cold water in controlling fevers, and uterine hæmorrhages ; and had he had a glimpse of the lights of modern Chemistry and Physiology, would doubtless have been content with its agency alone in the treatment of these and other diseases. Accordingly it reached only the rank of a *subsidiary* remedy with his successors. Dr. Currie deserves well of the profession and of humanity for his philanthropic efforts to make known the virtues of cold water in fevers. Notwithstanding its present disuse, cold affusions in fevers have the sanction of the best modern teachers. It has *always* been our "sheet-anchor."

The simplest British practice in fevers we find recorded, is the most successful—that of Dr. Jordan Lynch in the worst districts of London (Lancet, Dec. 14, 1839.) After rather brisk firing in the commencement of the attack—an emetic with a purgative of calomel and rhubarb and jalap—he confined the patient to three drachms of common salt to a pint of water in twenty-four hours : with plenty of cold spring water to drink : adding to the mixture, as the symptoms improved, a drachm of muriatic acid ; with effervescent soda powders, till convalescence was complete : supporting the strength with beef-tea and porter. This is the most rational practice, within the pale of orthodoxy, that we have heard of in this country. The result was commensurate with its sense and simplicity. Of ninety-seven cases, not one died ; and the recovery took place in as many days, as it required weeks with the usual routine.

Let us now compare the old tactics in fever with the new. The loss of blood (not to speak of its *subsequent* morbid results to the constitution) produces at the time an "irritative" or *pseudo-fever*, which is often mistaken for *real* : and the *bane* is often used again and again for the *antidote*, till the case is beyond either experimentation or cure. The medicinal means, "sanctioned by the highest authorities," for reducing fever, leave behind the track of their progress in the shape of organic irritations, which in turn become new objects of treatment. So that in such cases, it is extremely difficult to say, how

much of the organic lesion or functional disturbance met with, is the result of the treatment, and how much is the effect of the disease.

The water-cure processes subdue all the abnormal action of fever, without leaving any new materials of irritation. A greater or lesser number of wrung-sheet applications, or of the cold or tepid affusions, not only abstracts morbid heat, but reduces inordinate vascular action, and quells excessive nervous irritation. Cold lavements aid in the same object ; while they effect the necessary evacuations. Cold drinks assuage the thirst, cool the stomach, dilute its crudities, and facilitate their propulsion, attenuate the viscid blood, excite perspiration, and provoke urine. If the brain is the great focus of irritation, cold lotions *constantly* renewed—with derivation to the extremities and surface, by the wet-sheet fomentation, by the hip-bath, by the shallow-bath, and by the foot-bath—soon subdue morbid violence. That thus are accomplished all the ends that nature requires for the removal of diseased action, is apparent by the happy result. We appeal to facts alone for the settlement of this question. Let every practitioner who has the interest of humanity and science (and not the sordid gains of a calling) at heart, *try* the water-cure processes, as we have very feebly endeavored to develope its principles and practice. The issue will decide him. No words will then be necessary to conciliate partizanship : no arguments will be of avail to stagger confidence. He will then need to fear no complications in fever. His ministry and his anxiety will both be terminated before it had *seriously* begun, under the old incendiary discipline. But will men be found disinterested enough to *forego the fees*? We rate the virtue of the *best* men in the profession higher than to think they will *not*.

ERUPTIVE DISEASES.

We select **SMALL-POX**, for a single illustrative remark, which is equally applicable, *mutatis mutandis*, to scarlet fever. In mild cases, the ordinary cooling regimen, or even the *far' niente* practice, will suffice to conduct safely through the disease, and to prevent its malignant forms ; which are now happily rarely seen, but still occasionally met with. In the latter cases, when the eruption is *confluent*, danger arises from two opposite sources, either from excessive or defective action. If from the former cause, steady perseverance in the sedative water-processes will diminish the violence of the inflammatory

symptoms, and speedily amend the threatening character of the disease. If from the latter cause—danger from defective action—when the pustules are numerous, but small, badly developed, and pale—when the pulse is rapid and contracted, and the heart beats rather from its organic irritability (which disease is fast quenching) than from its muscular energy,—then the *stimulant* power of water (as already explained in its proper place) must be had recourse to. Cold affusion suddenly and rapidly performed, may so exalt the sinking vitality, and rally the energies of the organism, as favorably to decide the issue of the malady.

GOUT AND RHEUMATISM.

These are cognate diseases—twin brothers in pathology. The source of the constitutional disturbance is the excess of urea and uric acid salts in the blood. This *materies morbi*, again, is the product of the disturbed functions of the alimentary canal, or of the retained elements of excretions. The object of treatment is usually to eliminate these morbid materials, and *so* relieve a present attack. The means that do so, it is admitted, cannot correct the organic disposition or functional derangement that creates the disease. The free excretion of uric acid by means of colchicum, or by benzoic acid (which converts it into soluble salts,) is one of the few instances of a suitable adaptation of means to ends, in the *symptomatic* treatment of disease, suggested hitherto by the mutual lights of Chemistry and Pathology. It is after all the mere removal of an *effect* of disease. But, unless great care be used, the remedy is so noxious, that it will *raise* a demon in the system as bad as that which it is invoked to *lay*. The best drug-medication has always failed, and must necessarily fail, to touch the *cause* of the disease.

It would be easy to present here a long array of the means renowned in the cure of Gout and Rheumatism; and used with partial success. The principle of these are bloodletting, the hot or vapor bath, emetics, purgatives, diuretics, and dia-phoretics, in all possible varieties and combinations. Is it not in virtue of their opening the excernent outlets, and by *this action solely and exclusively* (and not by any occult properties they are supposed to possess) that the resources in question exercise any curative agency? Does not this theory explain the similarity of results obtained by the most different plans of treatment, and kinds of drugs, in the practice of contending sects?

The effect, the goal is one; the means to it are many—the roads different, but all converging to the same point. Nature seems to make even the errors and passions of men contribute to her ends. *Nolens volens*, intentionally or unintentionally, the eliminating organs are, in the pell-mell of medicines, stimulated to increased activity. Could these ends be missed in the random prescription of calomel and opium, salts and senna, colchicum and guaiacum, iodide of potass, and cream of tartar, ipecacan and antimony, rhubarb and jalap, aconite and belladonna, sarsaparilla and bark, morphia and camphor, Prussic and Spanish flies, iodine and arsenic? Is not this long catalogue of accredited remedies a satire on "the Divine art"—a confession of its impotence;—an acknowledgment that, open sufficiently Nature's own excretaries—put her in the train to do her own work—and it matters little what means do so: always taking care to use the means least costly to the constitution—allies the least likely to take the place of the enemy they are called to eject.

With the old tactics, the complications of acute Rheumatism—*Pericarditis* and *Endocarditis*—require early diagnosis and prompt treatment to avert present death, or to avoid future disability. The bellows-murmurs set up in the heart and great vessels consequent to bleeding *coup sur coup*, are the mere effects of the abstraction of blood; but are often mistaken and treated for the endocarditic complications. To these complications, undetected and untreated, are owing four-fifths at least of the chronic heart diseases, so often mistaken for essential asthmas, and the cause of innumerable dropsies. Dr. Hope's well-known treatment of Rheumatism was sure to avert this mischief. Mr. Wigan of Brighton's mode of giving powdered colchicum in eight-grain doses every hour, till active vomiting profuse perspiration, copious purging or diuresis, is the most summary and successful plan for strong subjects. Here, too, we have another apt illustration of our theory of the *modus operandi* of really curative agents—that they operate physiologically, not chemically.

Let us compare with the drug-treatment in question, the simple and nature-like processes of the water-cure. The wet sheet or sweating blanket, with plenty of air, exercise, plain diet, and pure water internally and externally in various ways—constitute its sum and substance. What activity of the excretaries can any drug of the long catalogue cited, effect, that is not more promptly, certainly, and safely effected by the water measures? What excitement of the circulation will not

the wet sheet quell? What pains will not its general fomentation allay? What morbid elements will not its powerful exudation eliminate? Will any medicine, or combination of medicines, equal these effects? The ample exercise, the air, the diet, the regular hours, the calm of the passions, are more potent means for destroying the gouty acidity and diathesis, re-establishing the digestive vigor, and consolidating the constitution, than drug-medication, or mineral waters, ever did, or ever can, pretend to.

Neuralgia is perhaps another member of the same family. Is not the seat of suffering identical in all the three—the fibrous neurilema? Are they not all marked by periodicity? This disease is too often confounded with inflammation, and treated accordingly. This is the case with pains of the head, chest, abdomen, and uterus. The *differential diagnosis* is not difficult, but nice. The water processes will afford the best means of radical cure. The only chance of permanent relief is by exalting the general health.

DROPSY.

It was long ago clearly made out by the French pathologists, and is now pretty generally recognised by the British (thanks to Dr. O'Beirne,) that obstruction of some of the venous trunks is the cause of dropsy. The consequent distension of the venous ramifications is relieved only by the pouring out of serum into the shut cavities of the cellular tissue.

In this disease, the two essential indications of treatment are 1. To promote the activity of the absorbents; and, 2. To correct or relieve the structural lesions that are the *sors malorum*. Bleeding is very often adopted with the former view (and sometimes without any view at all by routine practitioners:) if diuretics are to be used, venesection can scarcely be dispensed with, as Dr. O'Beirne has well shewn; the best diuretics often failing *before*, seldom *after* bleeding. We admit the *temporary* triumph here—the relief to the *effects* of obstruction by unburdening the loaded veins. But to bleed these debilitated patients, who are generally old or broken-up people—is to rob their already too impoverished blood of its small residue of vital constituents; and cannot fail eventually—by weakening the coats of the vessels, and the action of the heart—to confirm the morbid tendency. The factitious support of the strength by gin and brandy, as counseled by this clever practitioner, will only

tend to the same result. If this disease is to be radically cured, the structural lesions that cause it, are to be alleviated or corrected. Means that restore the strength and enrich the blood are the most likely to secure the conquest gained.

In dropsy, as in most other diseases treated orthodoxyically, the weapons of warfare are chiefly directed to the attack of symptoms ; and their exclusive object is to compel a violent effort of nature's own drains. This is accomplished by stimulating hydragogues and diuretics—jalap and juniper, elaterium and squills, calomel and nitre, broom-tops and fox-glove, &c. But the removal of the serous accumulation is by far the least half of the cure. The strength has to be supported ; the blood has to be enriched ; congested viscera have to be unloaded ; biliary secretion has to be rectified ; sleep to be secured ; local pains or general malaise to be relieved. The difficulty of accomplishing ALL THIS, while the organism is being belabored by the battering train referred to, may easily be conceived ! How do the simple water processes subjugate this disease ?

Pressure, it is well known, gives activity to the absorbents : cold increases the contraction of the capillaries. Here we have two conditions for the removal of a dropsical collection. The shallow-bath of tepid or cold water, with long continued and firm friction, promotes derivation, heat, and absorption ; and thus relieves the loaded cellular tissue or serous cavities, and the congested condition of the viscera :—the wet-sheet fomentation in sufficient dose to open the outlets of the skin—and heating bandages *tightly* applied over the seats of effusion, will contribute to the desired ends. Exercise will additionally promote the activity of the excrent organs and of the absorbent vessels—facilitating waste and necessitating supply. Appetite will arise. Digestion will improve. The too serous, or too fibrinous state of the blood will be corrected. The copious and systematic drinking of water, while it augments the activity of the skin and kidneys, will afford at once a menstruum for dissolving, and a vehicle for conveying away, retained elements.

We leave it to the unprejudiced to decide, which of these means, drug-medication or water-tactics, gives fullest scope to the conservative powers of the economy, to clear away both the *effect* and the *cause* of disease.

HŒMORRHAGES.

We refer here of course to internal Hœmorrhages, the province of Physic, not of Surgery.

The old mode of subduing the excessive vascular action of hœmorrhages (in most cases the *effect* of hœmorrhage, not the *cause*) by copious bloodletting, according to the strength of the patient—is now yielding to tartar emetic and ipecacuanha in nauseating doses:—a transition-state, we trust, to the simple water-tactics. The closing of the orifices of the bleeding vessels is sought to be accomplished by the coagulum formed in a state of depression. Is this coagulation in the extreme vessels the *modus operandi* of the more direct Hœmostatics, ergot of rye, gallic acid, tanine, acetate of lead, and turpentine? Or is it by simple *constriction* of the capillaries, in the same way as cold primarily operates to restrain bleeding? The latter is most probably the true theory of the operation of anti-hœmorrhagic remedies. If it be so, why go about to restrain a bleeding by the tedious and dangerous mode of *circulating a poison through the system* for accomplishing what cold water does promptly, certainly, and safely? In bleeding from the lungs, stomach, bowels, bladder, or uterus, cold can be made to bear both internally and externally, and to achieve its end too, often before a remedy—itself uncertain in its results—could be administered. No words can sufficiently reprobate the practice of bleeding for the pseudo-excitement resulting from loss of blood—the “irritative fever,” not inflammation—a symptom of exhaustion, not of strength—and which is to be cured by stimulants and nourishment, not depletion. Yet we have known this insane practice followed from day to day—the effect being mistaken for the cause; and the patients who were lucky enough to escape this sanguinary procedure, permanently anæmiated and broken up.

In hœmorrhage proceeding from an active cause, and accompanied with *real* excitement, every end of cure may be accomplished by the wet-sheet, cold affusion, evaporating lotions—or by ligatures to the limbs, in the manner suggested by Dr. Buckler, of Baltimore,—an innovation in practice of such value as to entitle this physician to the thanks of the profession. If Hœmoptysis be, as it is in the majority of cases, the result of a previous morbid process in the lungs—blood-letting is doubly injurious. In such a patient, the feeble pa-

lum of a feeble vitality is with difficulty replaced ; *tolerance* of its loss is of the *minimum* degree : its abstraction takes away the only chance left for the organism to elaborate the healthy plastic materials of the tissues.

In uterine hæmorrhage, whether puerperal or not, cold affusion, the hip-bath, the use of the speculum already described, the foot-bath, the wet-sheet, cold drinks, &c., will do more than the old incendiary mode of pouring brandy or wine down the throats of patients, and then the use of tardy styptics.

CONVULSIONS.

The source of this disease is a *primary* or *consecutive* irritation of the MEDULLA OBLONGATA, or of the spinal chord. The remote irritation in children is generally in the course of the alimentary canal, as difficult dentition, worms, &c. In adult females, convulsions are, perhaps, most frequently symptomatic of uterine irritation. In infantile cases, the cold water tactics are gradually coming into vogue. Dr. Marshall Hall, in his excellent observations on Hydrencephaloid disease, recommends the cold dash or pouring cold water on the head, for the reduction of coma. We recommend, *in addition*, the wet-sheet envelopment as an improvement on the practice. Dr. R. B. Todd has lately used the cold applications to the head and spine with marvelous effect. We hope that bleeding, as counseled for puerperal convulsions, will soon be replaced among accoucheurs, by the wet-sheet process with cold affusions to the head ; and that the incendiary purgation by calomel and jalep and turpentine will cease.

APOPLEXY.—ASPIHYXIA.—POISONING.

The apoplectic tendency (congestion of the brain,) and the apoplectic fit (rupture of a vessel,) are met with in two opposite states of the system—either from excess or deficiency of blood ; —a too pallid, or a too rubicund face, being equally their symptoms. Whether in the sthenic or the asthenic state, bleeding is the most ordinary practice ; but in either case it is alike bad. It will diminish, indeed, the quantity of blood, and give temporary relief in a threatened attack from its excess. But as a curative measure, it is not only *nil* but injurious. In approaching seizures of this kind, the patient has a deadly faintness ; the action of the heart is rapid, irregular, intermit-

ting ; there is great anxiety, alarm, and excitement. How senseless then, how injurious, to bleed a man in this condition ! The *sonus malorum* is not a redundancy of blood, but *a failure of nervous power*. The unequal distribution of the blood which hence arises is the great defect to be remedied. The abstraction of blood will eventually aggravate the *effects* ; and will never correct the *cause* of the disease. To bleed in the *shock* of the stroke, as is too often done, is murderous : to bleed in the subsequent reaction hardly less unjustifiable. In the shock the vital powers require no lowering : and in the menace of the fit, as well as after it, excited action, whether real or factitious, can be reduced by means that will answer the temporary end without an exhausting drain of the life-current. Cold affusion, or cold cloths to the head, will strengthen (by constringing) the vascular coats, and will prevent rupture. The wrung-sheet envelopment, hip-baths, or the shallow-bath, with sufficient friction of the trunk and extremities, will equalize the circulation. Lavements will regulate the bowels. Copious water drinking, with exercise, pure air, and plain diet, will refresh the blood of the impoverished, and attenuate the blood of the bloated, and call into activity the excretaries. The incendiary stimulation by wine, brandy, and drugs, *to keep the patient's spirits up*, necessitates frequent bleeding to keep the force and fulness of the cerebral circulation *down*. Dr. Wilson relates a remarkable case of this kind as illustrative, as he well remarks, "of the vast field for reformation in the medical treatment which at present prevails," but equally illustrative of his own skill in dealing with the simple weapon of water.

In the prostration, paralysis, and stupor succeeding a cerebral rupture that does not immediately kill—in persons asphyxiated by accident or design—in those seized with sudden madness, or maniacal violence, with suicidal or homicidal tendencies—in patients apparently stricken with death—and in cases of poisoning (after attempts at neutralization by the appropriate antidotes)—in all these instances, active and long-continued friction for hours in the cold, cool, or tepid shallow-bath, promises more than any other measure. This remedy in Priessnitz's hands is attended with astonishing success. Electro-puncture, between the eighth and ninth ribs, to the fibres of the diaphragm, will, in *viable* cases, restore respiration when all other means fail. Dr. A. T. Thompson advises to *abstract a large quantity of blood from the neighborhood of the brain ! to counteract the effects of the poison on that organ ! ! and to afford time to provide against the collapse ! ! !*—an event sure to be produced

by the remedy, if the poison should fail to finish the patient. Waiving the practice, is this sound Physiology ?

CONSUMPTION.

The full resources of the Water-Cure have never yet been brought to bear upon this fearful disease. The lights of Liebig's discoveries will do more than aught else to stay the ravages of this, the fellest foe of humanity—the desolator of the happiest homes—the blighter of all that is brightest and loveliest among the sons and daughters of men. Thank God ! an antidote may at length be said to be found for this desolating scourge. A clearer revelation of the cause is suggestive of valid measures both of prevention and of cure. The greatest triumphs of the Water-Cure system of Hygiene have probably yet to be achieved in this domain. But the practice must be in the hands of thorough-bred professional men. In this field of human woe, it may be predicted, without hyperbole, that a grateful posterity will record it of the water-cure physician—as in other field of disease it is preëminently entitled to record it of Priessnitz—"He stood between the living and the dead—and the plague was stayed!"

Dr. James Johnson, *in his private capacity as an observer* (and a first-rate observer he is), is forced to admit, that "the paramount virtue of the Water-Cure is that of preserving many a constitution from pulmonary consumption!" *In his public capacity as a reviewer* he sees fit to revoke this eulogy, and to decry the Water-Cure. In the former case, *the conviction of an honest heart* was spontaneously uttered in a moment when *no motives of policy* dictated its suppression. But, alas ! for the boasted Freedom of the Press in Great Britain, the medical press is *not free*. If he told the truth, and shocked the prejudices of his supporters, there would be a speedy end of his vocation and his Journal. Alas ! for the *mental* slavery of freemen ! How abject is the condition, how craven the thoughts, how pitiable the recantation of him whom the *necessities of business* compel to postpone TRUTH to INTEREST. Woe to the professional repute of that medical writer whose doctrines do not square with the fashionable dogmas of the time ! SYDENHAM was *despised* and *rejected* in his own day. Yet the very men that repudiated him, have been forced in later times, as if in atonement for their insult, to come and do homage at his shrine.—(*Ravenus à nos moutons.*)

The oxygen of the air is the proper external cause of the

waste of matter. Phthisis is a wasting of the frame in this way—a literal *rusting to death*. The essential feature of the debilitated and cachectic constitution which is the *fons malorum* in consumption, is the formation of tissues of a low degree of vitality. TUBERCLES are one species of these morbid products: organization is stopped short: that which should be a deposit of fibrine is only an exudation of albumen. Animalization is imperfect: the organized globules are arrested in their development. A vitiated nutrition is the starting-point of the mischief. The analogy is almost perfect between tubercular disease of the lungs and scrofulous deposits of the exterior.

The correction of nutrition—the invigoration of the digestive powers—the building up of a faulty constitution with new and sound materials—is the fundamental aim of treatment. As this disease, according to Liebig's theory, is essentially an oxydation of the tissues of the body, that food should be given which affords the most elements for combination with oxygen—thereby to shield the tissues of the body. The diet must, therefore, be *generous*. Antiphlogistic treatment—dietetic austeries—the failure of the moral energies consequent to the withdrawal of “hope”—and too often the palsied efforts of the practitioner from the *decided* prognosis afforded by the stethoscope—aggravate tenfold the fatality of Phthisis.—Late statistical researches go to prove that the *intemperies* of climate has very little to do with its prevalence.

Emetics have in past times done wonders in this complaint at all stages; but their curative power, especially in early stages, will be admitted by all practitioners of large experience who have given them a fair trial. These happy results may be explained partly—1, by the revulsive effect of the remedy on the constitution at large—2, by its stimulating certain physiological actions—principally promoting the activity of the absorbents and of the cutaneous circulation. Setons or issues over special seats of tubercular deposits—or the daily use of St. John Long's liniment (recommended by Drs. Graves and Stokes!) with the inhalation of iodine and conium, according to the formula of Sir Charles Scudamore—have, in our hands, saved many condemned lives, that without them would have been sacrificed. The return to the active pursuits of business of many individuals whose lungs were *hollowed out* with tubercular excavations, who had been given up as hopeless, and had actually approached the gates of death—must be a pretty familiar experience with all who have observed carefully, and treated perseveringly, numbers of such patients. Yet successful as

this practice has been, it is not to be compared with the truly marvelous and quite unlooked-for results of the water treatment of pulmonary tubercles in their crude or first stage. In a short time will appear a volume destined to shew by the evidence of authenticated cases, and by the aids of diagnostic physical signs, before and after treatment, "THE CURABILITY OF CONSUMPTION BY THE WATER PROCESSES." But in such diseases, let patients, above all things, beware of entrusting themselves to the hands of unprofessional "exploiteurs" of the water-cure. Priessnitz only fails in these cases because of his want of physical diagnosis : and because most of these patients have too feeble a vitality to resist the powerfully oxydizing influence of his rigorous climate. Hence Liebig has said that the Water-Cure is not suitable for Phthisis ;—but he had in view the water-cure at Gräfenberg ; and he is right therein. But the Water-Cure, as modified by practical physicians, both in climate and in processes, to the weak vital powers of such patients, will be found to be, as we have above affirmed, the most effectual check ever yet discovered for CONSUMPTION.

In ASTHMA, CATARRH, and HOOPING-COUGH, the Water-Cure measures, by maintaining or recalling the healthy functions of the skin, and augmenting the tone of the nervous system, diminish the susceptibility of both to morbid impressions, and harden against atmospheric vicissitudes. On the same principle, it is beneficial in the intervals of all *periodic* diseases—as ague, neuralgia, epilepsy.

STOMACH COMPLAINTS.

Here, alas ! medicines by almost universal consent are totally impotent. Drugs may relieve symptoms; but they never yet have created, and they never can create, a healthy stomach, or confer a vigorous digestion. By the water-discipline alone a *radical and permanent* cure is to be effected. Without "change of air," and "travelling exercise," how vain are the prescriptions of the most sapient medical mentors ! with them how useless !

URINARY DISORDERS.

The qualities of the urine are altered by disease of the kidneys, or derangement of the constitution. The secretions are temporarily vicarious of each other : an augmentation of one diminishes another, and *vice versa*. If the function of the liver

be suspended, highly *carbonized* products are eliminated with the urine. If the cutaneous or pulmonary exhalation be obstructed, there is a deposit of uric acid. In Diabetes and Bright's disease, there is a suppression of the functions of the skin: and in both a new element is added to the urine. In the former disease, the "*fons malorum*," so long referred to the kidneys, is to be sought in the digestive organs. The saccharine principles, or matters containing them, which we take as food, cannot be assimilated to the constituents of the blood, and of the living tissues. The ulterior stages of fermentation therefore take place: an abnormal development of saccharine principles is the result. The great object of treatment must be to strengthen the digestive and assimilative functions—to prevent the formation of sugar in the stomach. As to the other faulty states of the urine, or its apparatus, the remarks made under the head of Gout and Rheumatism make but few words necessary here. If any means will radically cure these diseases, it is the entire discipline of the water treatment. Well regulated diet, exercise, and cold bathing, with the powerful eliminating process of the wet-sheet, will do more than alcaline or saline draughts, colchicum, mercury, opium, sugar of lead, bark, benzoic acid, wine, purgatives, diaphoretics, diuretics, tonics, or bleeding. The correction of the faulty properties of the urine (where that can be effected, which is no easy matter in many cases,) is, after all, merely *the remedy of an effect*, not *the removal of a cause*. In changing, for example, the character of the urine from acid to alcaline, the *fons malorum* is still untouched.

UTERINE DISEASES.

We venture to affirm that the water treatment of the constitutional disorders of females—of the morbid results of pregnancy, miscarriages, and difficult labors—and of the illnesses incident to commencing and terminating menstruation—diseases, the bane of beauty, and the blight of hope—will one day, when conducted by physicians of skill and experience, exhibit the richest trophies of curative art. We hold out no hope of the cure of cancer. That its ravages, however, will be prevented, or greatly diminished, is a legitimate hope.

SKIN DISEASES.

The radical cure, and sometimes only the relief of some forms of these obstinate complaints, is the most difficult achieve-

ment in medicine. If any where, the water processes are here omnipotent. But they require full time to operate their results, and a very full course in all respects. The wet-sheet fomentation, which any one anxious for a cure may, in almost any circumstances, enforce, is the direct means chiefly to be relied on. This alone will mitigate any form, however inveterate and tormenting.

SYPHILIS.

The real *specific* for this plague, also, has been at length brought to light. M. Ricord himself confesses that mercury or iodide of potass is no *specific* for it, but merely cures *the sets of symptoms*, as they arise. The water-processes done justice to—notably the wet-sheet exudation, eliminate the whole virus from the system, even of the incurables. A mechanic, ill for the last six years of what Ricord would call a “*verole*” of the fifteenth century (so malignant and intractable has it been in every stage), for which he has been treated repeatedly in the first Provincial and London Hospitals, has now for the first time its ravages arrested, and his health reestablished, by the very imperfect water treatment he can give himself in his own very poor home. The excessive and indiscriminate use (or rather abuse) of mercury in this disease, has probably done more mischief to the human constitution than even its unchecked progress would have done. This at least is certainly the case as the disease presents itself in modern times.

THE DISEASES OF CHILDREN.

The diseases of children have been hitherto, under the old tactics, of alarming fatality. Statistical researches in great towns demonstrate this:—more than one half of the whole amount of deaths is of children under five years of age. By the processes of the water-cure, the whole of the once-fatal tribe of infantile diseases is now comparatively innocuous; and need cause no further anxiety to practitioners, or alarm to heads of families. The most threatening illnesses, as we have again and again witnessed in our own family and in others, are averted in a single day or night—often in a single hour—illnesses that would have run on to weeks of treatment, and in all probability have ended fatally, under drug-medication.

COUGH (acute laryngitis), the most formidable and deadly of these, is now divested of its terrors. This disease, under the

old system, unless attacked with the greatest vigor and skill from the beginning, will kill in a few hours. The mode we found most successful in combating very bad cases--and short of which there was no salvation--was almost a living death to an infant. We must describe the implements of warfare in the order of their use :—1. General bleeding, if the child were robust ; 2. An emetic ; 3. Sponging of the chest and throat with *very* hot water ; 4. A grain of calomel every two hours ; 5. Local bleeding ; 6. An emetic again ; 7. If, notwithstanding this brisk battery, false membrane still forms, cauterization of the throat with the solid lunar caustic ; or, 8. Its abstraction by the finger thrust into the glottis, when the patient is perhaps struggling in the last *gasp* !

How much more simple, how much more successful, the water treatment, which rescues sometimes even *in articulo mortis* ! The wet-sheet investment *pro re nata*, which is now a depletent, now a sudorific, as the necessity arises : evaporating bandages to the throat : cold affusion repeatedly to the back of the head, neck, and spine : cold water to drink.

We might go on at this rate, discussing the thousand-and-one ills that flesh is heir to in the shape of disease ; and comparing their drug-treatment with their water-cure. But we have not room, nor is it expedient, in a work of this nature, to *develope applications*. Enough we deem has been said to *illustrate the principles* we contend for ; and to stimulate those who are better qualified to take up the research.

In conclusion : we sum up the merits of the simple WATER-CURE relatively to the old complex treatment, in the following AXIOMS—truths which can neither be subverted nor denied ; which both reason and experience, theory and fact, unite to establish :—

AXIOM I. The office of ART, in the cure of diseases, is merely to aid NATURE. The most genuine and really available aid to Nature, in her restorative efforts, is that rendered by the processes of the Water-Cure.

II. A remedy can only be truly valuable, and inspire a just and rational confidence, in proportion as its nature and action are accurately known. As the doses, the effects, and *modus*

operandi of cold water variously applied, are more clearly ascertained than those of any other remedy ;—on these abstract grounds alone—(apart from the results of practice)—water makes out its claim to public and professional confidence.

III. The water-treatment will cure all diseases that medicines will cure ; that is—proper appliances of water externally, and its due use internally, will place the powers of the system in the same favorable position for restoring healthy action, that the most scientific administration of drugs is *said* to do. The water-processes, moreover, will cure many diseases that medicines will not cure ; and will materially alleviate the sufferings and prolong the days of the incurable.

IV. The Water-Cure treatment can be so modified as to produce every physiological change, and curative effort, of the constitution, that drugs can effect : and to fulfil every *indication* of medical treatment—now to be a *stimulant*, now a *sedative*—now an *anodyne*, now a *revulsive*—now a *diaphoretic*, now a *diuretic*—now an *emetic*, now a *purgative*—and each in the most salutary *measure* ; and in a manner at once safe, certain, prompt, and efficient. Medicines are confessedly unsafe, uncertain, tedious, and inefficient—either going beyond, or falling short of the effect intended. It is now clear to a *demonstration*, therefore, that in the present state of science, drugs *can* be superseded by more trustworthy substitutes ; and they *ought* to be superseded, as not only useless but injurious agents.

V. The salutary stimulus of every organic function is obtained by the Water-Cure processes—of digestion, assimilation, absorption, exhalation, secretion, excretion. All the ends of Perspiration are obtained by wrung-sheets, the sweating blanket, or heating bandages : the ends of Purgation are obtained by lavements, cold or tepid : the ends of Diuresis by sufficient water-drinking : the equalization of the circulation, or the ends of Revulsion or Derivation, are obtained by the general fomentation of the wet-sheet, partial baths, long friction in the shallow bath, the douche, &c.

VI. The great aim of all sound and scientific treatment—the true Philosophy of Therapeutics—is to obtain a cure by crisis—to let off diseased action or elements, by opening a drain through the outlets Nature takes in her own spontaneous cures. The entire and exclusive aim of all the Water-Cure

processes, is to develope the full activity of the secernt and excernent functions. This is accomplished without any of the unnatural strain and stimulation of the organism, that drugs always produce when they are directed to the same ends.

VII. The tendency and result of the Water-Cure processes in ACUTE (DYNAMIC) DISEASES, is to lessen permanently the heat of the body; to reduce inordinate vascular action; to quiet excessive nervous excitement; to unlock the reluctant excretaries of the system—the safety-valves of Nature; to clear out capillary obstruction; to open up the pores, to cleanse the surface, and to reestablish the eliminating functions of the skin; to obtund all morbid sensibilities that fret alike mind and body; to conciliate sleep.

VIII. The tendency and result of the same measures in CHRONIC (ADYNAMIC) DISEASES is to develope animal heat; to equalize the circulation of the surface and extremities; to facilitate the transformation of matter; to eliminate morbid excretions; to augment muscular vigor; to increase nervous power; to produce at once a demand for food, and the ability to digest and assimilate it; to give buoyancy to the spirits, alertness to the movements, and energy to the whole organism. Under the Water-Cure, in an incredibly short time, the whole mass of the blood, and the entire quality of the secretions, are changed. The constitution is literally renovated—rebuilt. These results are not hypothetical; or the mere coloring of a heated imagination; but they are a *demonstration* on the clearest physiological grounds; and are realized yearly in the cases of thousands of patients, most of whom were pronounced previously beyond the reach of art.

IX. An indispensable condition to the success of the Water-Cure is the withdrawal from the system of all *irritation* in the shape of affections of the mind, turmoil of affairs, and stomach-fret from improper diet, drinks, and drugs—all which aggravate the original malady, and establish new centres of morbid action.

X. The Water-Cure does not mortgage the powers of the constitution; nor leave behind vitiated habits; nor entail morbid tendencies; nor induce after-maladies—as when cure by drugs takes place. When the end of medicine is gained—when present disease is vanquished—we have no guarantee against (or rather we have the fearful looking for) the attack

of a new ailment, a growth, so to speak, from the seed of the drugs—noxious weeds springing up in a soil made rank with pharmaceutical filth.

XI. By the Water-Cure the present dangers of routine medical treatment are avoided; namely, 1. Interference with the salutary changes operating by Nature. 2. The depression of the vital powers by unnecessary bleeding, purging, vomiting, sweating, and diuresis. The metastases thus favored—the complications thus entailed, arrest or alter the natural course of disease, and impede recovery where they do not prevent it. It is assuredly this blind and meddlesome practice that confers upon fevers their immense fatality.

XII. Drugs are immediately or ultimately injurious even when wielded by the most skilful hands; and the best of them are uncertain in their benefits, either from being spurious in their nature, or spoiled in their qualities. They are, moreover, administered by the partizans of one School of Medicine in doses which those of another declare to be *poisonous*. The Water-Cure measures, in competent hands, are always innocuous, cannot be sophisticated, and cannot prove inert.

XIII. The best-treated cases, according to the doctrines of the schools—those most successful in result—are attended with such serious drawbacks as are calculated greatly to abate the boast of the physician's triumph, and to cool the ardor of the patient's gratitude. These drawbacks are—1. The tedious convalescence occasioned by the exhausting depletions thought necessary to quell the abnormal actions of the organism. 2. The liability to relapses, from the reduction of the organic vigor rendering the system doubly impressionable to morbid causes. 3. A permanently impaired constitution. 4. The drug-disease subsequently springing up.

XIV. BLOODLETTING—the withdrawal of the *pabulum ritæ*, and consequently the reduction of the *vis ritæ*—only augments the susceptibility of the system to take on diseased action. *All lowering remedies*, by diminishing the plasticity of the blood, dispose the morbid processes of the body to develop *low products*—tissues of deficient vitality—the *d^{eg}enerations of structure* (as tubercle) characterizing the most deadly diseases. Of how great moment, therefore, must be a plan of treatment that quells inflammation and other diseased states, without a waste of the vital fluids—and which nips them in the bud before they

become chronic and confirmed? How all-important is the indication, to improve the condition of the blood by inducing the highest activity of the digestive organs—the greatest amount of nutrition—simultaneously with measures to arrest local diseases, and to eradicate constitutional taint?

XV. The wet-sheet, or the cold affusion, produces *effectually* and *permanently* all that relief which bleeding produces *ineffectually* and *temporarily*; and with the material advantage of not robbing the constitution of the prime elements of its strength. No anodyne, no opiate, no evacuant, no medicinal means, can equal, or at all approach, the prompt and powerful *sedative* effect of the wrung-sheet on the vascular and nervous systems.

XVI. The Water-Cure, with its auxiliaries of AIR, EXERCISE, and DIET, justly claims to be the most perfect system of HYGEIENE ever set forth.

XVII. The Water-Cure is the long sought and best-devised CONSTITUTIONAL TREATMENT OF LOCAL DISEASES.

XVIII. The Water-Cure suspends the predisposition to, and eradicates the taint of, hereditary diseases, scrofula, consumption, gout, and rheumatism. It removes the cachexia, or vitiated habit of body induced by mercury, iodine, arsenic, and other drugs. It will improve the human constitution with the advance of time; and even be an instrument of the moral elevation of man. For it not only makes practicable, but easy, the abandonment of bad habits; and supersedes by healthier appetites the factitious stimulation of *drams* and drugs.

XIX. Most fatal maladies kill from want of proper early attention. The bulk of chronic diseases are admitted, by the generality of pathologists to be the consequence of neglected or maltreated acute diseases. These chronic maladies will now be diminished, if not exterminated. The timely application of the water-processes will prevent the development of the most dangerous and intricate stages of acute diseases, as they occur under drug-treatment.

XX. On the outbreak of future illnesses, water-treated patients will have in their favor all the *moral* and *physical* advantages which arise from *entire confidence* in a remedy, and a *sure hope* of its success. They will neither be alarmed by *vain terrors*, nor nonplussed by contradictory counsels.

XXI. The Water-Cure is neither tedious nor expensive

compared with the time and money spent in the *vain* pursuit of health. The most shattered constitution is rebuilt in a comparatively few months: a new lease of life, as the patients express themselves, is taken: and a new sphere of activity and enjoyment opens up for those who considered themselves as closing alike life's hope and history.

XXII. The most of the water cured patients have adopted it as their last expedient;—having exhausted the resources of the Pharmacopeia in their efforts to get rid of their diseases; often their purses; and always the ingenuity and the patience of their medical advisers.

XXIII. If the Water-Cure has done, and promises yet to do so much to renovate decayed constitutions, and to cure or relieve diseases erewhile incurable and unrelievable; how much more efficacious must it be, to preserve the health already unimpaired, by removing the conditions, and arresting the elements, of disease, in their first development.

XXIV. The proper administration of the Water-Cure measures requires full as much knowledge of the powers of the remedy, and judgment as to the capabilities of the individual, as any other mode of medical management. The tampering, therefore, of invalids with their own cases, or of unqualified and uneducated persons with the public health, cannot be reprobated in too strong terms.

XXV. An exact knowledge of the physiological and pathological effects water can produce, and of the morbid conditions wherein its agency is indicated, can alone enable the practitioner to employ with intelligence and success the different "means and appliances" of the cure—to appreciate their diversified modes of action—and therefore to multiply as well as to simplify his therapeutical resources, in knowing how to perform with one *unique* remedy, almost every possible indication.

XXVI. The graduation of the *dose* of the water-measures—the mode of exhibition—the temperature—and the time of application—relatively to the strength of the patient, and the necessities of the disease, will constitute the touchstone of the practitioner of true genius. "*Medicus nascitur, non fit.*"

XXVII. The faulty administration of water—neglect of the laws of its operation—a groundless timidity of its due application to the living organism—or a love of sophisticated Art in-

stead of simple Nature—one or all of these causes have almost driven it from the pale of orthodox practice, and equally limited its general usage in society.

XXVIII. Brilliant as the achievements of the Water-Cure hitherto have been, it is reasonable to believe, that, when it is zealously studied and carried out by professional men of learning and genius, it will bring forth fruits many-fold exceeding all the rich harvests of the past.

XXIX. A justifiable feeling against unprofessional dabblers in the Water-Cure, is very unjustifiably extended to the practice itself. Medical men have their own prejudice and apathy to blame for leaving the field open to ignorant "exploiteurs." Their adoption of the Water-Cure will be the deathblow to Quacks and Quackery. Any other means, than the diffusion of knowledge, to suppress quackery, is absurd in its nature, and will be inefficient in its end. The encouragement given to it, arises out of a principle of human nature, that will neither be eradicated by a "coercion-bill," nor shamed out by ridicule. Destroy the mystery and mysticism of Physic ; and quackery will die a natural death.

XXX. The Water-Cure will produce such a revolution in the treatment of disease, as has never occurred before, and never will occur after. Hitherto the sects and schools of Physic have been pretty equally divided. How conflicting soever their practice, and how contradictory soever their theories, the results of treatment are nearly uniform in all. But the case is far otherwise with the new system. The immense, we had almost said infinite, superiority of its results, alone demonstrate that its principles must be founded on TRUTH. The relative number of cures is out of all proportion *greater*, and of deaths out of all proportion *less*, in a thousand cases of severe maladies treated by the new, than in the same number treated by the old practice. It is a mortification, therefore, the pride of science must endure, to see the cumbersome mysteries of scholastic lore, superseded by the simpler and more efficacious practice of a peasant genius.

XXXI. The SCIENCE of Medicine—the immutable truths of Anatomy, Physiology, Pathology, and Chemistry, on which it is based—will never be superseded : its present ART will—the dogmas and doctrines of Pharmaceutics, and their uncertain applications will be exploded. The faults of the herb-collector,

the errors of the Laboratory, and the adulterations of Trade, will no more vitiate or nullify medical practice. A new CYCLE in the History of Medicine is now commencing to run. WATER—despised water—which is nevertheless the moving principle of our machinery, and the vehicle of the Commerce of Nations, is destined henceforth to be an agent of coextensive utility in the god-like ART OF HEALING.

XXXII. Opposition, when honest and not factious, is good, and to be coveted. It will call combatants into the field on both sides ; and the result of the collision will be the eliciting of TRUTH. “Who ever knew Truth put to the worst in a free and open encounter ?”—*Milton.*

XXXIII. The most *serious* objection to the Water-Cure, is, that it is an *unprofitable* mode of practice. Disease is too soon subdued ; and the artillery of its reduction too simple, too overt, and of too small cost, to be good for *trade*. This *tells* in a commercial country. But if this objection were as valid as it is selfish and short-sighted, a wise Government will never enlarge its revenue by what curtails the lives of its subjects ; or promote the *profit* of the few by the *loss* of the many.

XXXIV. The general adoption of the Water-Cure principles and practice will induce a much more healthy frame-work of society, physically, mentally, and morally ; and will thereby annihilate an almost infinite host of diseases, that originate in present baneful modes, customs, and habits—not to say the present system of Polypharmacy. This “heavy blow and great discouragement” to the material interests of the profession is sufficient reason for the warfare defensive, waged against the Water-Cure by those whose craft and emoluments are in danger. “Great was Diana of the Ephesians.” Yet her fame fell, and her votaries disappeared, before the rising shrine of a purer worship.

XXXV. It may be safely affirmed, that nature has provided in every country an antidote to its disease, as well as the diet suited to its climate. The fond dreams of philanthropists, and the longing hopes of physicians, may now be said to be realized, for the first time in the world’s history. A PANACEA, *as nearly as can be*—A UNIVERSAL REMEDY—so far as such a boon is consistent with the laws of Nature—seems at length to be discovered, and set before the eyes of a wondering world.

CONFessions AND OBSERVATIONS
OF
SIR EDWARD LYTTON BULWER.

I HAVE been a workman in my day. I began to write and to toil, and to win some kind of a name, which I had the ambition to improve, while yet little more than a boy. With strong love for study in books—with yet greater desire to accomplish myself in the knowledge of men, for sixteen years I can conceive no life to have been more filled by occupation than mine. What time was not given to the action was given to study; what time not given to study, to action—labor in both! To a constitution naturally far from strong, I allowed no pause or respite. The wear and tear went on without intermission—the whirl of the wheel never ceased. Sometimes, indeed, thoroughly overpowered and exhausted, I sought for escape. The physicians said “Travel,” and I traveled. “Go into the country,” and I went. But in such attempts at repose all my ailments gathered round me—made themselves far more palpable and felt. I had no resource but to fly from myself—to fly into the other world of books, or thought, or reverie—to live in some state of being less painful than my own. As long as I was always at work it seemed that I had no leisure to be ill. Quiet was my hell.

At length the frame thus long neglected—patched up for a while by drugs and doctors—put off and trifled with as an intrusive dun—like a dun who is in his rights—brought in its arrears—crushing and terrible, accumulated through long years. Worn out and wasted, the constitution seemed wholly inadequate to meet the demand. The exhaustion of toil and study had been completed by great anxiety and grief. I had watched with alternate hope and fear the lingering and mournful death-bed of my nearest relation and dearest friend—of the

person around whom was entwined the strongest affection my life had known—and when all was over, I seemed scarcely to live myself.

At this time, about the January of 1844, I was thoroughly shattered. The least attempt at exercise exhausted me. The nerves gave way at the most ordinary excitement—a chronic irritation of that vast surface we call the mucous membrane, which had defied for years all medical skill, rendered me continually liable to acute attacks, which from their repetition and the increased feebleness of my frame might at any time be fatal. Though free from any organic disease of the heart, its action was morbidly restless and painful. My sleep was without refreshment. At morning I rose more weary than I laid down to rest.

Without fatiguing you and your readers further with the *longa cohors* of my complaints, I pass on to record my struggle to resist them. I have always had a great belief in the power of the WILL. What a man determines to do—that in ninety-nine cases out of the hundred I hold that he succeeds in doing. I determined to have some insight into a knowledge I had never attained since manhood—the knowledge of health.

I resolutely put away books and study, sought the airs which the physicians esteemed the most healthful, and adopted the strict regimen on which all the children of Æsculapius so wisely insist. In short, I maintained the same general habits as to hours, diet (with the exception of wine, which in moderate quantities seemed to me indispensable,) and, so far as my strength would allow, of exercise, as I found afterwards instituted at hydropathic establishments. I dwell on this to fore-stall in some manner the common remark of persons not well acquainted with the medical agencies of water—that it is to the regular life which water-patients lead, and not to the element itself, that they owe their recovery. Nevertheless, I found that these changes, however salutary in theory, produced little if any practical amelioration in my health. All invalids know, perhaps, how difficult, under ordinary circumstances, is the alteration of habits from bad to good. The early rising, the walk before breakfast, so delicious in the feelings of freshness and vigor which they bestow upon the strong, often become punishments to the valetudinarian. Headache, languor, a sense of weariness over the eyes, a sinking of the whole system towards noon, which seemed imperiously to demand the dangerous aid of stimulants, was all that I obtained by the morning breeze and the languid stroll by the sea-shore. The

suspension from study only afflicted with intolerable *ennui*, and added to the profound dejection of the spirits. The brain, so long accustomed to morbid activity, was but withdrawn from its usual occupations to invent horrors and chimeras. Over the pillow, vainly sought two hours before midnight, hovered no golden sleep. The absence of excitement, however unhealthy, only aggravated the symptoms of ill-health.

It was at this time that I met by chance, in the library at St. Leonard's, with Captain Claridge's work on the "Water Cure," as practiced by Priessnitz at Gräfenberg. Making allowance for certain exaggerations therein, which appeared evident to my common sense, enough still remained not only to captivate the imagination and flatter the hopes of an invalid, but to appeal with favor to his sober judgment. Till then, perfectly ignorant of the subject and the system, except by some such vague stories and good jests as had reached my ears in Germany, I resolved at least to read what more could be said in favor of the *ariston udor*, and examine dispassionately into its merits as a medicament. I was then under the advice of one of the first physicians of our age. I had consulted half the faculty. I had every reason to be grateful for the attention, and to be confident in the skill, of those whose prescriptions had, from time to time, flattered my hopes and enriched the chemist. But the truth must be spoken—far from being better, I was sinking fast. Little remained to me to try in the great volume of the herbal. Seek what I would next, even if a quackery, it certainly might expedite my grave, but it could scarcely render life—at least the external life—more unjoyous. Accordingly I examined, with such grave thought as a sick man brings to bear upon his case, all the grounds upon which to justify to myself—an excursion to the snows of Silesia. But I own that in proportion as I found my faith in the system strengthen, I shrunk from the terrors of this long journey to the rugged region in which the probable lodging would be a laborer's cottage, and in which the Babel of a hundred languages, (so agreeable to the healthful delight in novelty—so appalling to the sickly despondency of a hypochondriac)—would murmur and growl over a public table spread with no tempting condiments. Could I hope to find healing in my own land, and not too far from my own doctors in case of failure, I might indeed solicit the watery gods—but the journey! I who scarcely lived through a day without leech or potion—the long—gelid journey to Gräfenberg—I should be sure to fall ill by the way—to be clutched and mismanaged by some German

doctor—to deposite my bones in some dismal church-yard on the banks of the Father Rhine.

While thus perplexed, I fell in with one of the pamphlets written by Dr. Wilson, of Malvern, and my doubts were solved. Here was an English doctor, who had himself known more than my own sufferings, who, like myself, had found the pharmacopeia in vain—who had spent ten months at Gräsenberg, and left all his complaints behind him—who fraught with the experience he had acquired, not only in his own person, but from scientific examination of the cases under his eye, had transported the system to our native shores, and who proffered the proverbial salubrity of Malvern air and its holy springs, to those who, like me, had ranged in vain, from simple to mineral, and who had become bold by despair—bold enough to try if health, like truth, lay at the bottom of a well.

I was not then aware that other institutions had been established in England of more or less fame. I saw in Doctor Wilson the first transporter—at least as a physician—of the Silesian system, and did not pause to look out for other and later pupils of this innovating German school.

I resolved then to betake myself to Malvern.—On my way through town I paused, in the innocence of my heart, to inquire of some of the faculty if they thought the water-cure would suit my case. With one exception, they were unanimous in the vehemence of their denunciations. Granting even that in some cases, especially of rheumatism, hydropathy had produced a cure—to my complaints it was worse than inapplicable—it was highly dangerous—it would probably be fatal. I had not stamina for the treatment—it would fix chronic ailments into organic disease—surely it would be much better to try what I had not yet tried. What I had not yet tried? A course of prussic acid! Nothing was better for gastric irritation, which was no doubt the main cause of my suffering! If, however, I were obstinately bent upon so mad an experiment, Doctor Wilson was the last person I should go to. I was not deterred by all these intimidations, nor seduced by the salubrious allurements of the prussic acid under its scientific appellation of hydiocamic. A little reflection taught me that the members of a learned profession are naturally the very persons least disposed to favor innovation upon the practices which custom and prescription have rendered sacred in their eyes. A lawyer is not the person to consult upon bold reforms in jurisprudence. A physician can scarcely be expected to own that a Silesian peasant will cure with water the diseases which ro-

sist an armament of phials. And with regard to the peculiar objections to Doctor Wilson, I had read in his own pamphlet attacks upon the orthodox practice sufficient to account for—perhaps to justify—the disposition to depreciate him in return.

Still my friends were anxious and fearful; to please them I continued to inquire, though not of physicians, but of patients. I sought out some of those who had gone through the process. I sifted some of the cases of cure cited by Doctor Wilson. I found the account of the patients so encouraging, the cases quoted so authentic, that I grew impatient of delay. I threw physic to the dogs, and went to Malvern.

It is not my intention, Mr. Editor, to detail the course I underwent. The different resources of water as a medicament, are to be found in many works easily to be obtained, and well worth the study. In this letter I suppose myself to be addressing those as thoroughly acquainted with the system as myself was at the first, and I deal therefore only in generals.

The first point which impressed and struck me was the extreme and utter innocence of the Water-Cure in skilful hands—in any hands indeed not thoroughly new to the system. Certainly when I went, I believed it to be a kill or cure system. I fancied it must be a very violent remedy—that it doubtless might effect great and magical cures—but that if it failed it might be fatal. Now, I speak not alone of my own case, but of the immense number of cases I have seen—patients of all ages—all species and genera of disease—all kinds and conditions of constitution, when I declare, upon my honor, that I never witnessed one dangerous symptom produced by the Water-Cure, whether at Doctor Wilson's or the other Hydropathic Institutions which I afterwards visited. And though unquestionably fatal consequences might occur from gross mismanagement, and as unquestionably have so occurred at various establishments, I am yet convinced that water in itself is so friendly to the human body, that it requires a very extraordinary degree of bungling, of ignorance and presumption, to produce results really dangerous; that a regular practitioner does more frequent mischief from the misapplication of even the simplest drugs, than a water doctor of very moderate experience does, or can do, by the misapplication of his baths and friction. And here I must observe, that those portions of the treatment which appear to the uninitiated as the most perilous, are really the safest, and can be applied with the most impunity to the weakest constitutions: whereas those which appear, from our greater familiarity with them, the least startling and most innocuous,

are those which require the greatest knowledge of general pathology and the individual constitution. I shall revert to this part of my subject before I conclude.

The next thing that struck me was the extraordinary ease with which, under this system, good habits are acquired and bad habits relinquished. The difficulty with which, under orthodox medical treatment, stimulants are abandoned is here not witnessed. Patients accustomed for half a century to live hard and high, wine-drinkers, spirit-bibbers, whom the regular physician has sought in vain to reduce to a daily pint of sherry, here voluntarily resign all strong potations, after a day or two cease to feel the want of them, and reconcile themselves to water as if they had drank nothing else all their lives. Others who have had recourse for years and years to medicine—their potion in the morning, their cordial at noon, their pill before dinner, their narcotic at bed-time, cease to require these aids to life, as if by a charm. Nor this alone. Men to whom mental labor has been a necessary—who have existed on the excitement of the passions and the stir of the intellect—who have felt, these withdrawn the prostration of the whole system—the lock to the wheel of the entire machine—return at once to the careless spirits of the boy in his first holiday.

Here lies a great secret; water thus skilfully administered is in itself a wonderful excitement: it supplies the place of all others—it operates powerfully and rapidly upon the nerves, sometimes to calm them, sometimes to irritate, but always to occupy. Hence follows a consequence which all patients have remarked—the complete repose of the passions during the early stages of the cure; they seem laid asleep as if by enchantment. The intellect shares the same rest; after a short time mental exertion becomes impossible; even the memory grows far less tenacious of its painful impressions, cares and griefs are forgotten; the sense of the present absorbs the past and future; there is a certain freshness and youth which pervade the spirits, and live upon the enjoyment of the actual hour. Thus the great agents of our mortal wear and tear—the passions and the mind—calmed into strange rest—Nature seems to leave the body to its instinctive tendency, which is always towards recovery. All that interests and amuses is of a healthful character; exercise, instead of being an unwilling drudgery, becomes the inevitable impulse of the frame braced and invigorated by the element. A series of reactions is always going on—the willing exercise produces refreshing rest, and refreshing rest willing exercise. The extraordinary effect which water

taken early in the morning produces on the appetite is well known amongst those who have tried it, even before the Water-Cure was thought of ; an appetite it should be the care of the skilful doctor to check into moderate gratification ; the powers of nutrition become singularly strengthened, the blood grows rich and pure—the constitution is not only amended—it undergoes a change.

The safety of the system then, struck me first ;—its power of replacing by healthful stimulants the morbid ones it withdrew, whether physical or moral, surprised me next ;—that which thirdly impressed me was no less contrary to all my pre-conceived notions. I had fancied that whether good or bad, the system must be one of great hardship, extremely repugnant and disagreeable. I wondered at myself to find how soon it became so associated with pleasurable and grateful feelings as to dwell upon the mind amongst the happiest passages of existence. For my own part, despite all my ailments, or whatever may have been my cares, I have ever found exquisite pleasure in that sense of *being* which is as it were the conscience, the mirror of the soul. I have known hours of as much and as vivid happiness as perhaps can fall to the lot of man ; but amongst all my most brilliant recollections I can recall no periods of enjoyment at once more hilarious and serene than the hours spent on the lonely hills of Malvern—none in which nature was so thoroughly possessed and appreciated. The rise from a sleep as sound as childhood's—the impatient rush into the open air, while the sun was fresh and the birds first sang—the sense of an unwonted strength in every limb and nerve, which made so light of the steep ascent to the holy spring—the delicious sparkle of that morning draught—the green terrace on the brow of the mountain, with the rich landscape wide and far below—the breeze that once would have been so keen and biting, now but exhilarating the blood, and lifting the spirits into religious joy ; and this keen sentiment of present pleasure rounded by a hope sanctioned by all I felt in myself, and nearly all that I witnessed in others—that that very present was but the step—the threshold—into an unknown and delightful region of health and vigor ;—a disease and a care dropping from the frame and the heart at every stride.

I staid some nine or ten weeks at Malvern, and business from which I could not escape, obliging me then to be in the neighborhood of town, I continued the system seven weeks longer under Dr. Weiss, of Petersham ; during this latter period the agreeable phenomena which had characterized the

former, the cheerfulness, the *bien aise*, the consciousness of returning health vanished ; and were succeeded by great irritation of the nerves, extreme fretfulness, and the usual characteristics of the constitutional disturbance to which I have referred. I had every reason, however, to be satisfied with the care and skill of Doctor Weiss, who fully deserves the reputation he has acquired, and the attachment entertained for him by his patients ; nor did my judgment ever despond or doubt of the ultimate benefits of the process. I emerged at last from these operations in no very portly condition. I was blanched and emaciated—washed out like a thrifty housewife's gown—but neither the bleaching nor the loss of weight had in the least impaired my strength ; on the contrary, all the muscles had grown as hard as iron, and I was become capable of great exercise without fatigue ; my cure was not effected, but I was compelled to go into Germany. On my return homewards I was seized with a severe cold which rapidly passed into high fever. Fortunately I was within reach of Doctor Schmidt's magnificent hydropathic establishment at Boppard : thither I caused myself to be conveyed ; and now I had occasion to experience the wonderful effect of the Water-Cure in acute cases ; slow in chronic disease, its beneficial operation in acute is immediate. In twenty-four hours all fever had subsided, and on the third day I resumed my journey, relieved from every symptom that had before prognosticated a tedious and perhaps alarming illness.

And now came gradually, yet perceptibly, the good effects of the system I had undergone ; flesh and weight returned ; the sense of health became conscious and steady ; I had every reason to bless the hour when I first sought the springs of Malvern. And here, I must observe, that it often happens that the patient makes but slight apparent improvement, when under the cure, compared with that which occurs subsequently. A water-doctor of repute at Brussels, indeed, said frankly to a grumbling patient, "I do not expect you to be well while here—it is only on leaving me that you will know if I have cured you."

It is as the frame recovers from the agitation it undergoes, that it gathers round it power utterly unknown to it before—as the plant watered by the rains of one season, betrays in the next the effect of the grateful dews.

I had always suffered so severely in winter, that the severity of our last one gave me apprehensions, and I resolved to seek shelter from my fears at my beloved Malvern. I here passed

the most inclement period of the winter, not only perfectly free from the colds, rheum, and catarrhs, which had hitherto visited me with the snows, but in the enjoyment of excellent health; and I am persuaded that for those who are delicate, and who suffer much during the winter, there is no place where the cold is so little felt as at a Water-Cure establishment. I am persuaded also, and in this I am borne out by the experience of most water-doctors, that the cure is most rapid and effectual during the cold season—from autumn through the winter. I am thoroughly convinced that consumption in its earliest stages can be more easily cured, and the predisposition more permanently eradicated by a winter's pent at Malvern, under the care of Doctor Wilson, than by the timorous flight to Pisa or Madeira. It is by hardening rather than defending the tissues that we best secure them from disease.

And now, to sum up, and to dismiss my egotistical revelations, I desire in no way to overcolor my own case; I do not say that when I first went to the Water-Cure I was affected with any disease immediately menacing to life—I say only that I was in that prolonged and chronic state of ill-health, which made life at the best extremely precarious—I do not say that I had any malady which the faculty could pronounce incurable—I say only that the most eminent men of the faculty had failed to cure me. I do not even now affect to boast of a perfect and complete deliverance from all my ailments—I cannot declare that a constitution naturally delicate has been rendered Herculean, or that the wear and tear of a whole manhood have been thoroughly repaired. What might have been the case had I not taken the cure at intervals, had I remained at it steadily for six or eight months without interruption, I cannot do more than conjecture, but so strong is my belief that the result would have been completely successful, that I promise myself, whenever I can spare the leisure, a long renewal of the system.—These admissions made, what have I gained meanwhile to justify my eulogies and my gratitude?—an immense accumulation of the *capital of health*. Formerly it was my favorite and querulus question to those who saw much of me, “Did you ever know me twelve hours without pain or illness?”—Now, instead of these being my constant companions, they are but my occasional visitors. I compare my old state and my present to the poverty of a man who has a shilling in his pocket, and whose poverty is therefore a struggle for life, with the occasional distresses of a man of £5,000 a year, who sees but an appendage endangered or a luxury abridged. All

the good that I have gained, is wholly unlike what I have ever derived either from medicine or the German mineral baths : in the first place, it does not relieve a single malady alone, it pervades the whole frame ; in the second place, far from subsiding, it seems to increase by time, so that I may reasonably hope that the latter part of my life, instead of being more infirm than the former, will become—so far as freedom from suffering, and the calm enjoyment of external life are concerned—my real, my younger, youth. And it is this profound conviction which has induced me to volunteer these details, in the hope (I trust a pure and kindly one) to induce those, who more or less have suffered as I have done, to fly to the same rich and bountiful resources. We ransack the ends of the earth for drugs and minerals—we extract our potions from the deadliest poisons—but around us and about us, Nature, the great mother, professes the Hygeian fount, unsealed and accessible to all. Wherever the stream glides pure, wherever the spring sparkles fresh, there, for the vast proportion of the maladies which Art produces, Nature yields the benignant healing.

The remedy is *not* desperate ; it is simpler, I do not say than any *dose*, but than any *course* of medicine—it is infinitely more agreeable—it admits no remedies for the complaint which are inimical to the constitution. It bequeathes none of the maladies consequent on blue pill and mercury—on purgatives and drastics—on iodine and aconite—on leeches and the lancet. If it cures your complaint, it will assuredly strengthen your whole frame ; if it fails to cure your complaint, it can scarcely fail to improve your general system. As it acts, or ought, scientifically treated, to act, first on the system, lastly on the complaint, placing nature herself in the way to throw off the disease, so it constantly happens that the patients at a hydro-pathic establishment will tell you that the disorder for which they came is not removed, but that in all other respects their health is better than they ever remember it to have been. Thus, I would not only recommend it to those who are sufferers from some grave disease, but to those who require merely the fillip, the alterative, or the bracing which they now often seek in vain in country air or a watering-place. For such, three weeks at Malvern will do more than three months at Brighton or Boulogne ; for at the Water-Cure the whole life is one remedy ; the hours, the habits, the discipline—not incompatible with gaiety and cheerfulness (the spirits of hydropathists are astounding, and in high spirits all things are amusement)

tend perforce to train the body to the highest state of health of which it is capable.

The Water-Cure as yet has had this evident injustice—the patients resorting to it have mostly been desperate cases. So strong a notion prevails that it is a desperate remedy, that they only who have found all else fail have dragged themselves to the Bethesda Pools. That all thus not only abandoned by hope and the College, but weakened and poisoned by the violent medicines absorbed into their system for a score or so of years—that all should not recover is not surprising! The wonder is that the number of recoveries should be so great;—that every now and then we should be surprised by the man whose untimely grave we predicted when we last saw him, meeting us in the streets ruddy and stalwart, fresh from the springs of Gräfenberg, Boppard, Petersham, or Malvern.

Here then, O brothers, O afflicted ones, I bid you farewell. I wish you one of the most blessed friendships man ever made—the familiar intimacy with Water. Not Undine in her virgin existence more sportive and bewitching, not Undine in her wedded state more tender and faithful than the Element of which she is the type. In health may you find it the joyous playmate, in sickness the genial restorer and soft assuager. Round the healing spring still literally dwell the jocund nymphs in whom the Greek poetry personified Mirth and Ease. No drink, whether compounded of the gums and rosin of the old Falereian, or the alcohol and acid of modern wine, gives the animal spirits which rejoice the water-drinker. Let him who has to go through severe bodily fatigue try first whatever—wine, spirits, porter, beer—he may conceive most generous and supporting; let him then go through the same toil with no draughts but from the chrystal lymph, and if he does not acknowledge that there is no beverage which Man concocts so strengthening and animating as that which God pours forth to all the children of Nature, I throw up my brief. Finally, as health depends upon healthful habits, let those who desire easily and luxuriously to glide into the courses most agreeable to the human frame, to enjoy the morning breeze, to grow epicures in the simple regimen, to become cased in armor against the vicissitudes of our changeful skies—to feel, and to shake off, light sleep as a blessed dew, let them, while the organs are yet sound, and the nerves yet unshattered, devote an autumn to the water-cure.

And you, O parents! who, too indolent, too much slaves to custom, to endure change for yourselves, to renounce for a

while your artificial natures, but who still covet for your children hardy constitutions, pure tastes, and abstemious habits—who wish to see them grow up with a manly disdain to luxury—with a vigorous indifference to climate—with a full sense of the value of health, not alone for itself, but for the powers it elicits, and the virtues with which it is intimately connected—the serene unfretful temper—the pleasures in innocent delights—the well-being that, content with self, expands in benevolence to others—you I adjure not to scorn the facile process of which I solicit the experiment. Dip your young heroes in the spring, and hold them not back by the heel. May my exhortations find believing listeners, and may some, now unknown to me, write me word from the green hills of Malvern, or the groves of Petersham, “We have hearkened to you—not in vain.” Adieu, Mr. Editor, the ghost returns to silence.

E. BULWER LYTTON.

THE END.